
GPS AutoSteer System Installation Manual



Supported Vehicles

John Deere Sprayers

4700

4710

4720

Non-AutoTrac Ready

LEGAL DISCLAIMER

Note: Read and follow ALL instructions in this manual carefully before installing or operating the AutoSteer system.

Note: Take careful note of the information in the Safety Information section and throughout this manual.

The manufacturer disclaims any liability for damage or injury that results from failure to follow the instructions and warnings set forth herein.

Please take special note of the following warnings:

1. There is NO obstacle avoidance system included in the manufacturer's product. Therefore, users must always have an operator on the equipment when the AutoSteer system is in use to look for any obstacles including people, animals, trees, ditches, buildings, etc.
2. During installation of the AutoSteer system and during the Calibration and Tuning processes the vehicle's wheels turn from side to side and the vehicle moves. Be sure that all people and obstacles are clear of the vehicle before installation, calibration and tuning, or use of the AutoSteer system.
3. Use of the AutoSteer system is NOT permitted while equipment is on roads or in public areas. Follow the instructions set forth below for ensuring that the system is OFF before driving on roads or in public areas.

Special Requirements

Tools

This list consists of the tools required to complete the installation. The installer is assumed to have a complete set of common installation tools.

10mm open wrench	3/8" open wrench	#1 Phillips screwdriver
10mm socket and ratchet	7/16" open wrench	# 2 Phillips screwdriver
13mm open wrench	1/2" open wrench	Small wire cutter
13 mm socket and ratchet	1/2" 12 point ratchet wrench	Tape measure (12ft minimum)
16mm open wrench	9/16" open wrench (x2)	Cleaning rags
17mm open wrench	9/16" socket and ratchet	Cleaning brush
18mm open wrench	5/8" open wrench	Ten foot (3 meter) ladder
19mm open wrench	11/16" open wrench	Hacksaw
19 mm socket and ratchet	3/4" open wrench	Fiberglass Cable Puller
22mm open wrench	13/16" open wrench	3/16" Allen wrench
22mm socket wrench	7/8" open wrench	1/4" Allen wrench
24mm open wrench	1/8 Allen Wrench	5/32 Allen wrench
24mm socket and ratchet	3/4" drive breaker bar	1/2" drive breaker bar
30mm socket 3/4" drive	5000 psi Pressure Gauge with a Short Hose and 1/8" Test Port Coupler that meets the SAE J1502 standard.	


Safety Information


Warning Alerts

The AutoSteer system installer and manufacturer disclaim any responsibility for damage or physical harm caused by failure to adhere to the following safety requirements:



- As the operator of the vehicle, you are responsible for its safe operation.
- The steering system is *not* designed to replace the vehicle’s operator.



Note: Verify that all screws, bolts, nuts, hose connections and cable connections are tight after the final installation of the AutoSteer system on the vehicle.



	⚠ WARNING
	To avoid electrical shock hazards, remove the Roof Module from the vehicle before driving under low structures or low electrical power lines.



	⚠ WARNING
	To prevent injury from falling, ensure you are in a stable position on the vehicle when installing or removing the Roof Rail and Roof Module. If the vehicle does not provide a safe platform, use a ladder to safely access the vehicle roof while installing or removing the Roof Rail and Roof Module.

	⚠ WARNING
	To prevent accidental death or injury from being run over by the vehicle, never leave the vehicle's operator chair with the AutoSteer engaged.

	<div data-bbox="430 277 1089 346"> WARNING</div> <div data-bbox="430 346 1089 522"><p>High-Pressure Fluid Hazard</p><p>Read the Owner's Manual before installation. Wear hand and eye protection while performing hydraulic system maintenance. Relieve hydraulic system pressure before servicing the hydraulic system.</p></div>
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	<div data-bbox="430 609 1089 678"> WARNING</div> <div data-bbox="430 678 1089 825"><p>To understand the potential hazards associated with the operation of AutoSteer equipment read the provided documentation before installing the AutoSteer system on a vehicle.</p></div>
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	<div data-bbox="430 913 1089 982"> WARNING</div> <div data-bbox="430 982 1089 1127"><p>To prevent the accidental engagement of AutoSteer and loss of vehicle control while driving on roads, shut down the AutoSteer system (exit the program). Never drive on roads or in public areas with the AutoSteer system turned on.</p></div>
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	<div data-bbox="430 1215 1089 1285"> WARNING</div> <div data-bbox="430 1285 1089 1432"><p>Do not stand close to the wheels and do not move the machine while you are adjusting the relief valve. Turn off the engine and engage the parking brake before standing under or next to the machine.</p></div>
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Caution Alerts

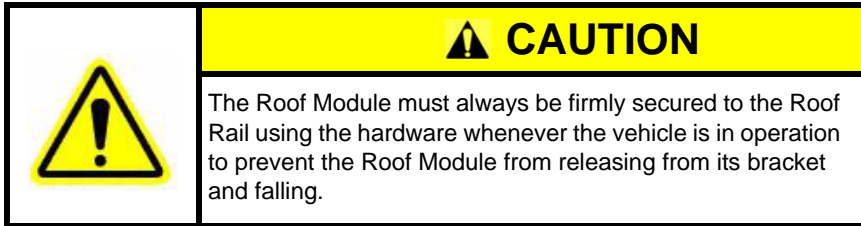
The AutoSteer system installer and manufacturer disclaim any responsibility for damage or physical harm caused by failure to adhere to the following safety requirements:

	 CAUTION
	The Roof Module must be removed when transporting or driving the vehicle at speeds above 30 mph (50 km/h). The Roof Module can possibly detach due to wind loads at higher speeds.

	 CAUTION
	The AutoSteer system does not detect obstacles in the vehicle's path. The operator must observe the path being driven in order to avoid obstacles.

	 CAUTION
	When engaged, the AutoSteer system controls only the steering of the vehicle. The operator must control the speed of the vehicle.

	 CAUTION
	The AutoSteer system must be powered OFF when installing or removing the Roof Module.



Vehicle Requirements

The vehicle steering and hydraulic systems must be in good working order before installing the AutoSteer system. Check for loose or worn parts. Before installing the AutoSteer system drive the vehicle and confirm that it steers straight and the wheels can be turned from lock to lock. Check the steering system hydraulic hoses and connections to ensure there are no oil leaks.

The vehicle electrical system and battery must be in good working order.

The vehicle must be non-AutoTrac ready. AutoTrac ready vehicles require a different installation kit. Contact your AutoSteer dealer for the correct installation kit.

The vehicle should be fully cleaned before installing the AutoSteer system. A clean vehicle will improve the overall installation and cable routing and will also reduce the chance for oil contamination when the hydraulic connections are opened. It is important to clean the area around the steering unit (Orbitrol), under the cab.

Important Information

Note: Verify that all screws, bolts, nuts, hose connections and cable connections are tight after the final installation of the AutoSteer system on the vehicle.

Technical Support

Refer to your owner's manual for technical support information.

Contact Information

Refer to your owner's manual for contact information.

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Installation Overview

This **Installation Overview** chapter contains part numbers, kit overview diagram, cabling diagram and the installation procedure for the John Deere Sprayer non-AutoTrac Installation Kit.

- *Vehicle Inspection*
- *Installation Procedure Outline*
- *Kit Overview*
 - *AutoSteer Kit Assemblies*
 - *Bracket Kit*
 - *Hose Kit*
- *Cable Diagram*

This installation guide describes the installation of the AutoSteer system on all the John Deere Sprayer Non-AutoTrac 4700 series vehicles listed on the front cover. They all share the same top-level AutoSteer installation kit PN: 188-0030-01.

Vehicle Inspection

Before AutoSteer system installation confirm the vehicle steering system is in good working order. Also, ensure the following system operations and components:

- Check to see if you can turn the front wheels from lock to lock.
- Ensure the vehicle steers straight.
- Check for loose or worn steering components.
- Ensure the hydraulic fluid level is correct.
- Service the vehicle if the steering is not in good working order.

Note: If you are installing an electric steering wheel actuator such as OnTrac II, skip the SA Module, Steering Valve connection and System Cable connection installation provided in this manual. Refer to your electric steering product manual for additional instructions.

Installation Procedure Outline

Note: The system interconnect cable diagram in the *Cable Diagram* on page 8 section of this chapter shows the AutoSteer electrical connections.

1. Verify shipped components.
2. Install the Hydraulic Valve Assembly.
3. Install the Hydraulic Hoses.
4. Install the Wheel Angle Sensor.
5. Install the SA Module.
6. Install the Roof Rail on the cab roof.
7. Install the Roof Module on the Roof Rail.
8. Install the SA Module harness and route cables to the various sensors.
9. Route SA module data and power cable towards the cab.
10. Install the display bracket and the RAM mount ball inside the cab.
11. Install the display using a RAM mount arm.
12. Install the main data harness and route cables to Roof Module and power connector.

Note: Instructions for connecting the vehicle kit cables to the display can be found in the display owner's manual.

13. Connect the main harness to the display harness.
14. Connect the main harness to the SA Module harness.
15. Verify all connectors are properly coupled and secured.
16. Power ON the AutoSteer system.
17. Calibrate the vehicle.
18. Tune the vehicle.
19. Verify the system has been installed properly and operates satisfactorily.

Kit Overview

Note: All the John Deere Non-AutoTrac 4700 series vehicles listed on the front cover share the same top-level AutoSteer installation kit PN: 188-0030-01.

AutoSteer Kit Assemblies

Figure 1-1 AutoSteer Kit Components (PN: 188-0030-01)

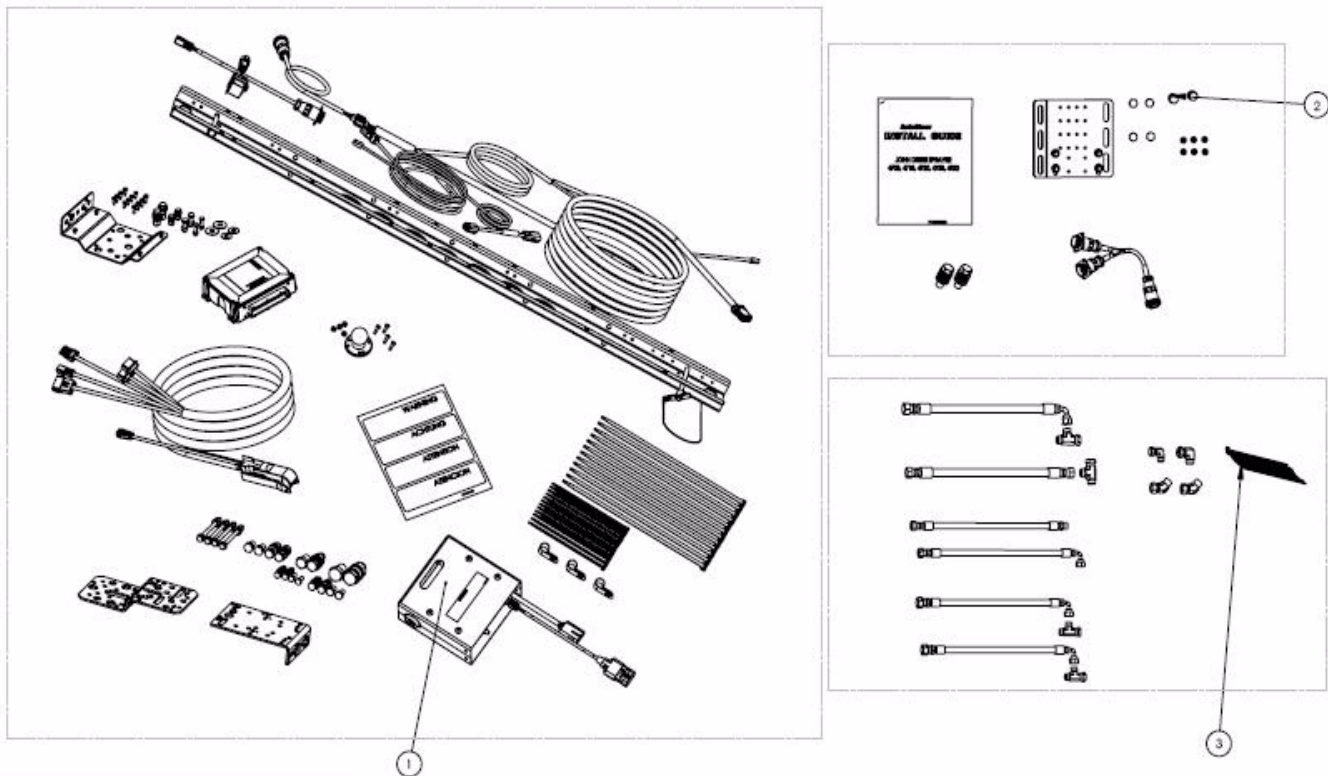


Table 1-1 Installation Kit Components (PN: 188-0030-01)

Item	Component	Part Number
1.	Common Installation Kit	153-0001-01
2.	Display Bracket Kit	152-0057-01
3.	Hose Kit	500-0304-01

AutoSteer Installation Kit

Figure 1-2 Installation Kit Components (PN: 153-0001-01)

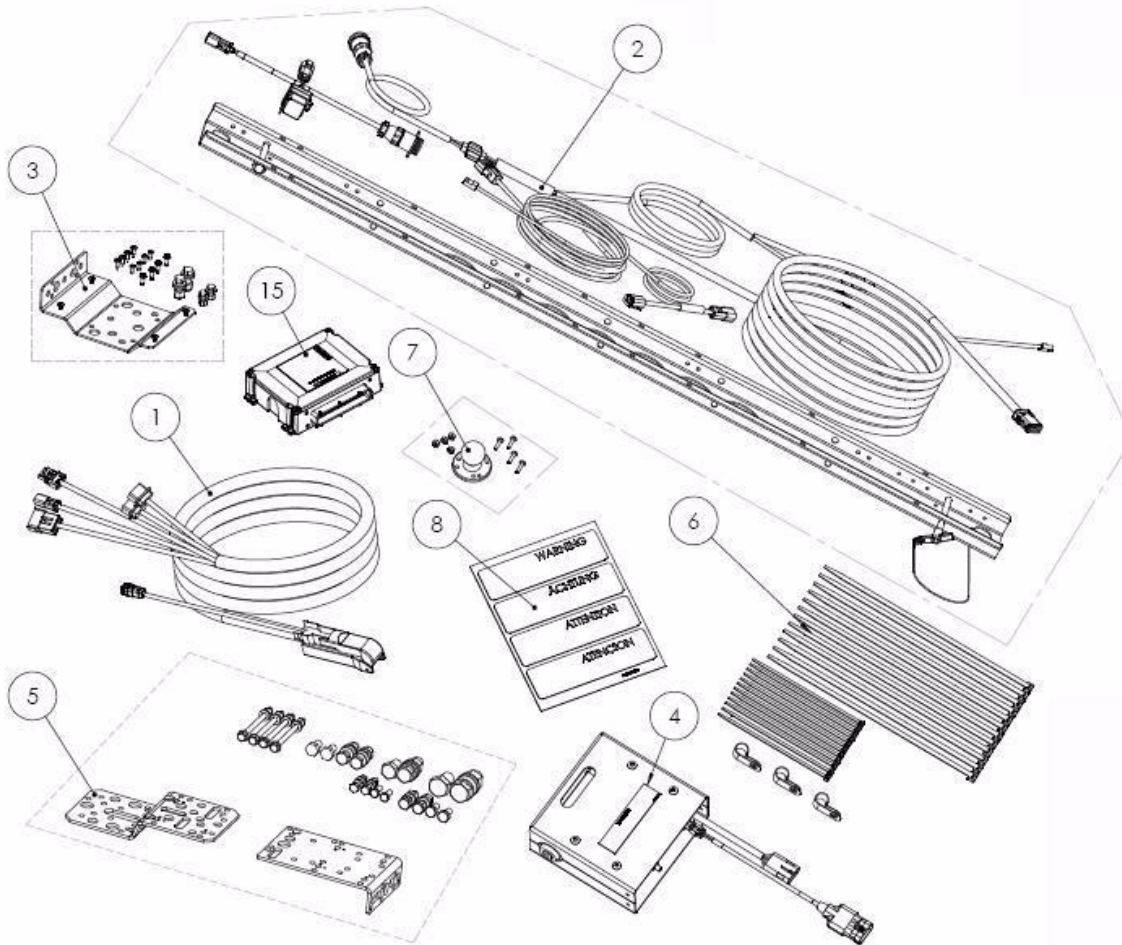


Table 1-2 Installation Kit Components (PN: 153-0001-01)

Item	Component	Part Number
1.	SAM Harness	201-0371-02
2.	Common Installation Kit	200-0497-02
3.	SA Module Bracket	200-0190-01
4.	Valve Assembly	200-0457-01
5.	Valve Bracket Kit	200-0434-01
6.	Mounting Hardware	200-0076-01
7.	Display RAM Mount Base	200-0508-01

Item	Component	Part Number
8.	Warning Labels	603-0074-01
15.	SA Module Assembly	200-0206-01

Bracket Kit

Figure 1-3 Bracket Kit Components (PN: 152-0057-01)

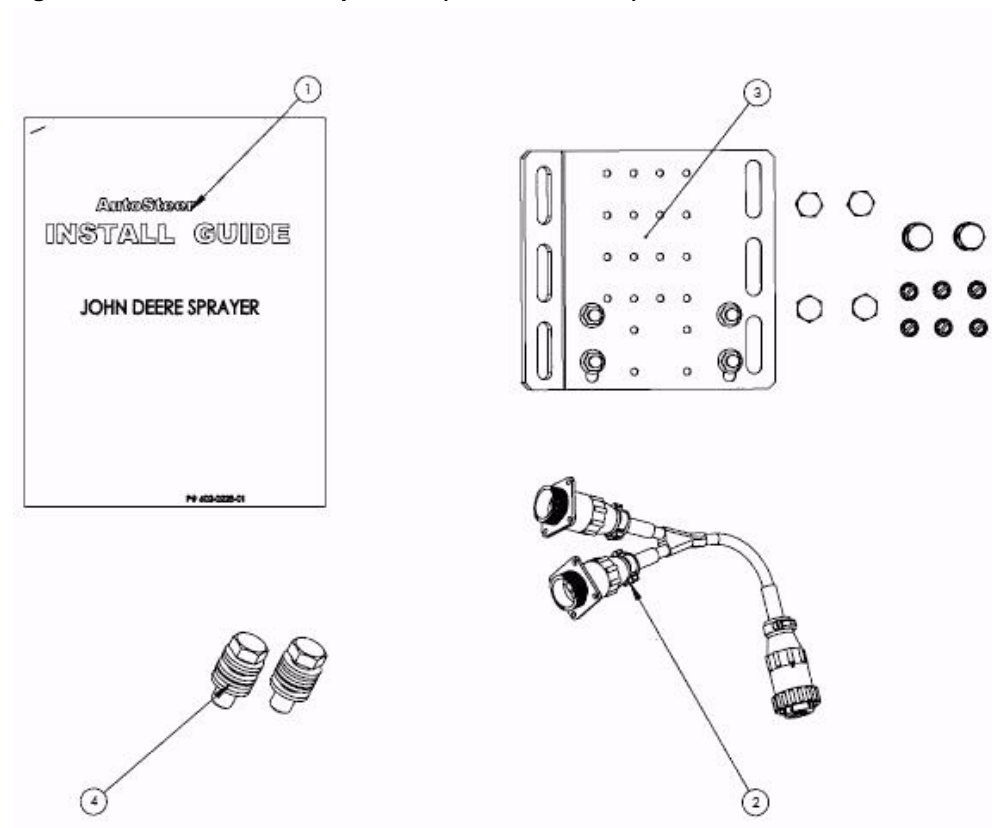


Table 1-3 Bracket Kit Components (PN: 152-0057-01)

Item	Component	Part Number
1.	Installation Manual	602-0228-01
2.	Power Splitter Cable Assembly	201-0024-01
3.	Display Bracket	200-0469-02
4.	Roof Module Bolt Kit	200-0238-01

Hose Kit

Figure 1-4 Bracket Kit Components (PN: 500-0304-01)

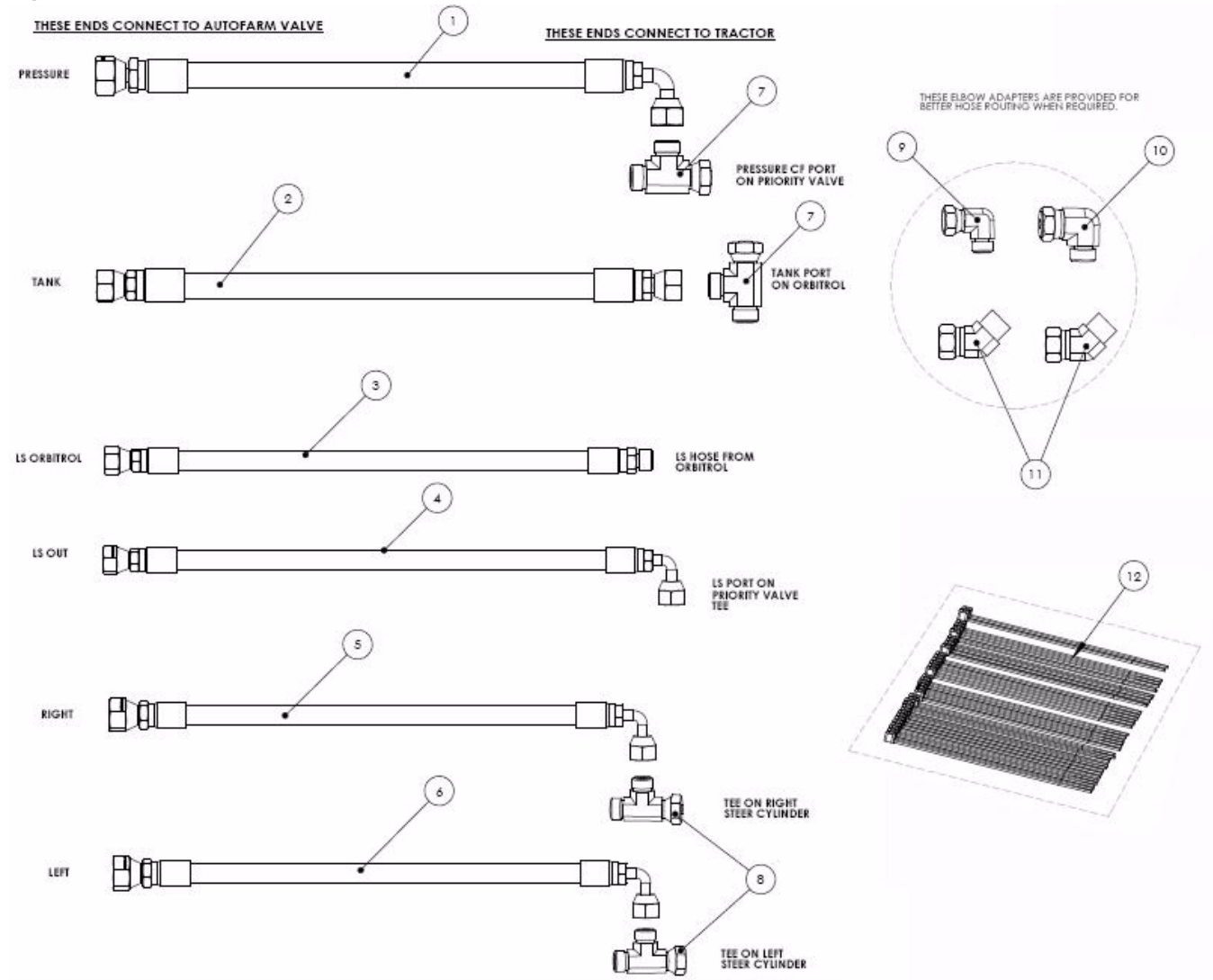


Table 1-4 Hose Kit Components (PN: 500-0304-01)

Item	Component	Part Number
1.	Hose Assembly 3/8" x 84"	F451TC-JCJ9080606-84
2.	Hose Assembly 3/8" x 60"	F451TC-JCJC060606-60
3.	Hose Assembly 1/4" x 78"	F451TC-JCJO040404-78
4.	Hose Assembly 1/4" x 84"	F451TC-JCJ9040404-84
5.	Hose Assembly 1/4" x 174"	F451TC-JCJ9060404-174

Item	Component	Part Number
6.	Hose Assembly 1/4" x 150"	F451TC-JCJ9060404-150
7.	Adapter Run Tee	6 R6LO-S
8.	Adapter Run Tee	4 R6LO
9.	Adapter Swivel Elbow	4 C6LO
10.	Adapter 90 Degree	6 C6LO
11.	Adapter 45 Degree	6 V6LO-S
12.	Cable Ties ^a	200-0467-01

- a. The colored cable ties included in the kit are used to identify the hydraulic hoses. Place identical colored cable ties at the ends of each hydraulic hose to positively identify the hose.

The suggested hose color assignments are as follow:

Pressure - Red

Tank - Green

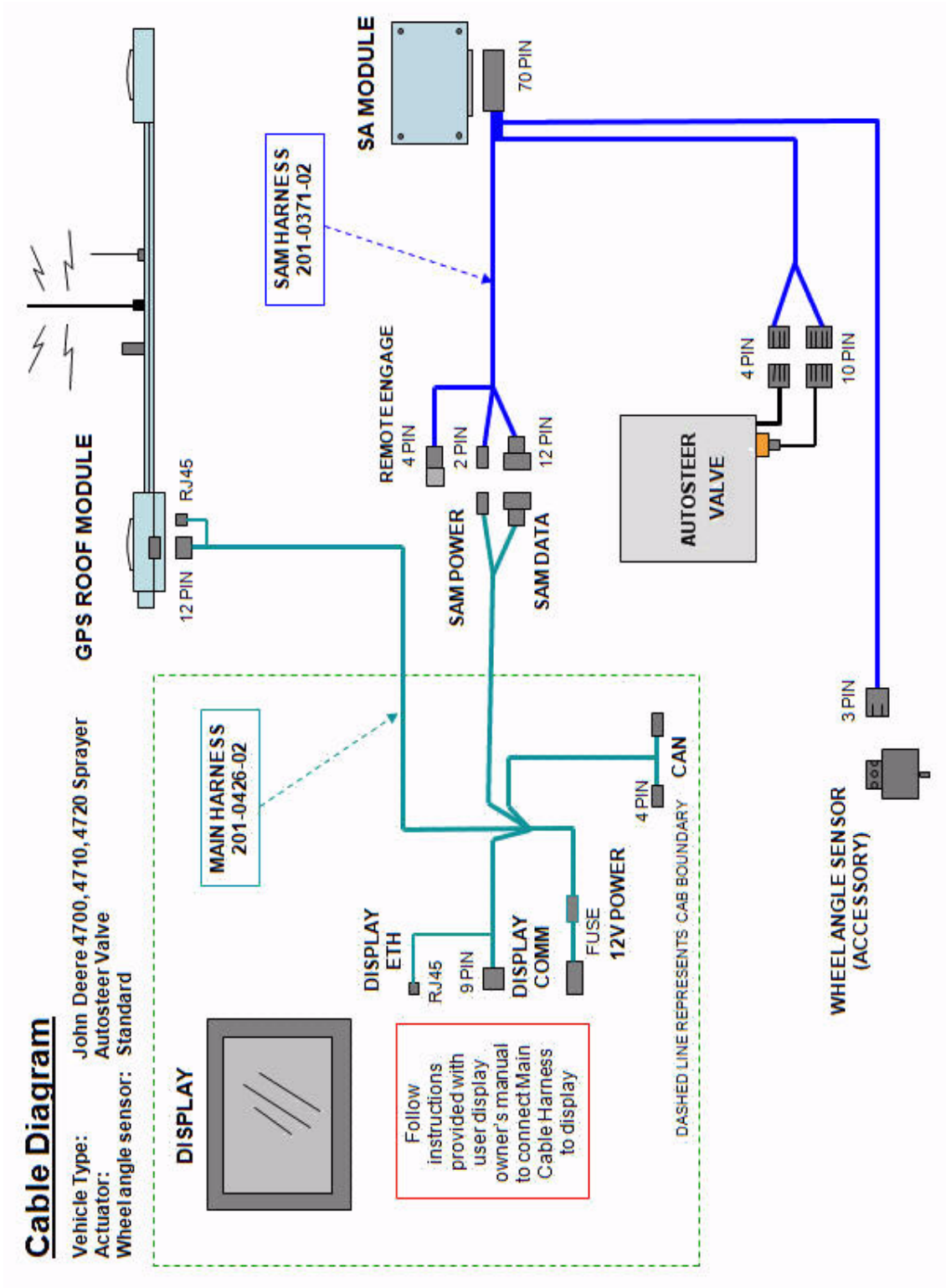
LS Orbitrol - Blue

LS Out - Grey

Steer Right - Yellow

Steer Left - Orange

Cable Diagram





Steering Valve Installation

This **Steering Valve Installation** chapter information is provided in the following sections:

- Steering Valve Installation Procedure Overview
- *Hose Kit*
- *AutoFarm Steering Valve Configuration*
- *AutoSteer Valve Configuration for Installation*
- *Install the Valve Bracket*
- *Hydraulic Hose Connection Overview*
- *Hydraulic Hose Connection Procedure*
 - *Access the Orbitrol*
 - *Locating the Steering Priority Valve*
 - *Identifying Priority Valve Ports*
 - *Orbitrol Tank Hose Connection*
 - *Orbitrol Pressure Hose Connection*
 - *Right Steering Hose Connection*
 - *Left Steering Hose Connection*
 - *Orbitrol Load Sense Signal Hose Connection*
 - *LS Orbitrol Connection*
 - *Pressure Transducer*
- *Hydraulic Checklist Before Proceeding to Startup*

Steering Valve Installation Procedure Overview

1. Install the AutoFarm valve bracket and valve on the vehicle.
2. Connect the six hoses between the valve and the vehicle.
3. Check for oil leaks.
4. Adjust the AutoFarm pressure relief valve.
5. Perform a functional test to confirm correct valve operation.

	<div data-bbox="662 600 937 646"> WARNING</div> <div data-bbox="581 682 915 714">High-Pressure Fluid Hazard</div> <div data-bbox="430 714 1040 831">Read the Owner's Manual before installation. Wear hand and eye protection while performing hydraulic system maintenance. Relieve hydraulic system pressure before servicing the hydraulic system.</div>
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Hose Kit

Figure 2-1 John Deere Hose Kit (500-0304-01)

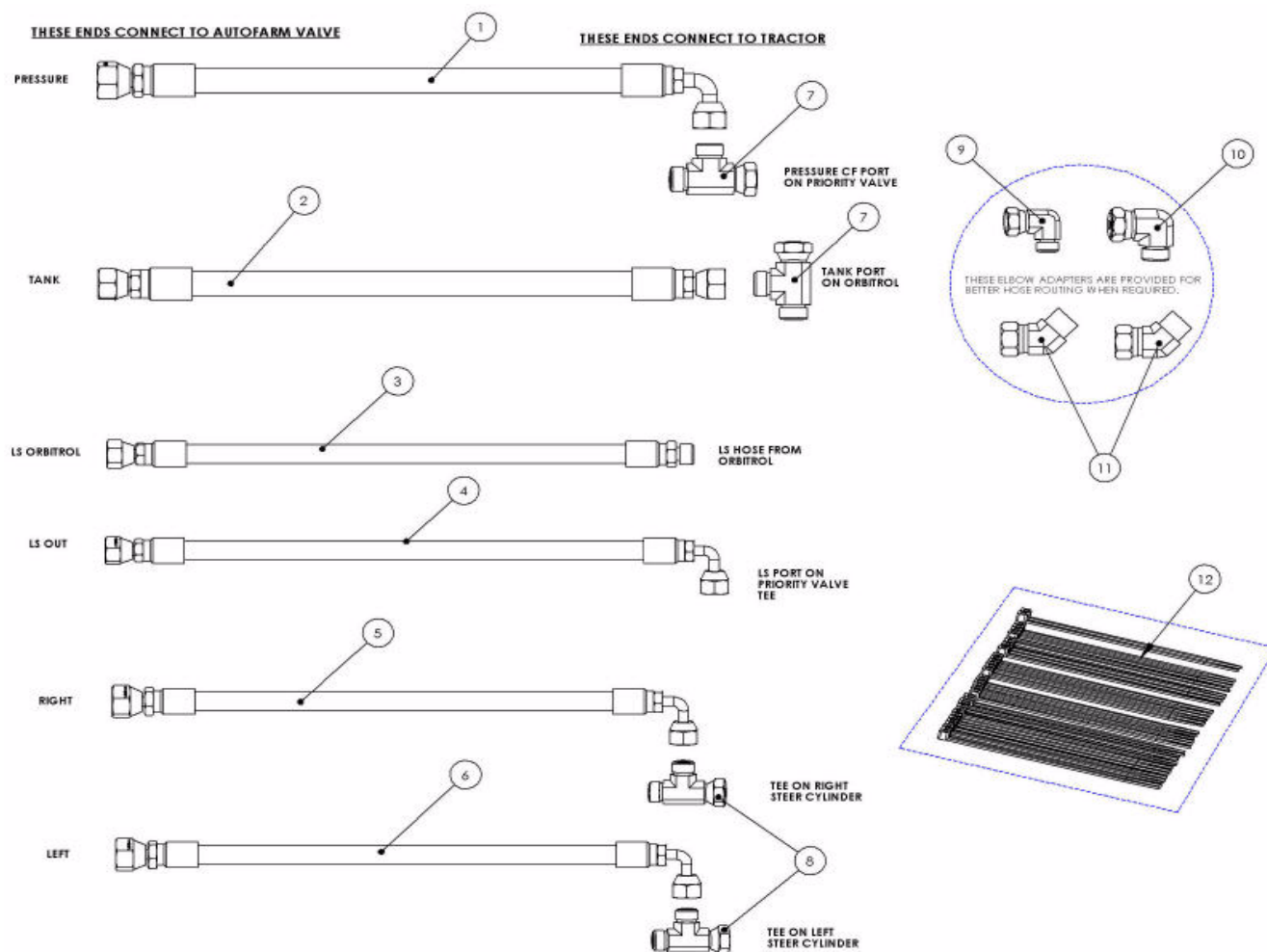


Table 2-1 Hose Kit Components (PN: 500-0304-01)

Item	Component	Part Number
1.	Hose Assembly 3/8" x 84"	F45ITC-JCJ9080606-84
2.	Hose Assembly 3/8" x 60"	F45ITC-JCJC060606-60
3.	Hose Assembly 1/4" x 78"	F45ITC-JCJO040404-78
4.	Hose Assembly 1/4" x 84"	F45ITC-JCJ9040404-84
5.	Hose Assembly 1/4" x 174"	F45ITC-JCJ9060404-174
6.	Hose Assembly 1/4" x 150"	F45ITC-JCJ9060404-150
7.	Adapter Run Tee	6 R6LO-S

Hose Kit

Item	Component	Part Number
8.	Adapter Run Tee	4 R6LO
9.	Adapter Swivel Elbow	4 C6LO
10.	Adapter 90 Degree	6 C6LO
11.	Adapter 45 Degree	6 V6LO-S
12.	Cable Ties ^a	200-0467-01

- a. The colored cable ties included in the kit are used to identify the hydraulic hoses. Place identical colored cable ties at the ends of each hydraulic hose to positively identify the hose.

The suggested hose color assignments are as follow:

Pressure - Red

Tank - Green

LS Orbitrol - Blue

LS Out - Grey

Steer Right - Yellow

Steer Left - Orange

AutoFarm Steering Valve Configuration

1. Use a 3/16" Allen key to remove the four cover screws. See *Figure 2-2*.
2. Remove the front cover to access the hose connections, pressure transducer and relief valve. See *Figure 2-2*.

Note: *Figure 2-3* shows the Steering Valve assembly hydraulic port connection functions.

Figure 2-2 Steering Valve Assembly

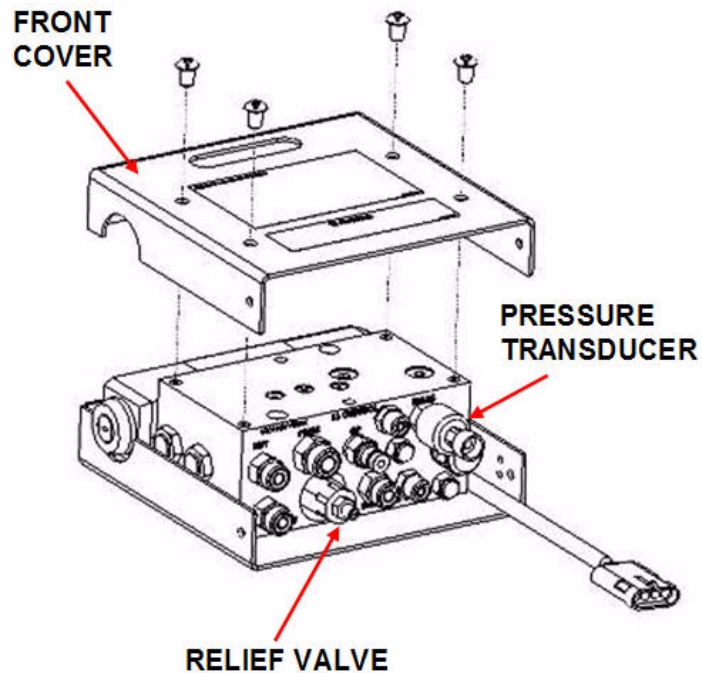
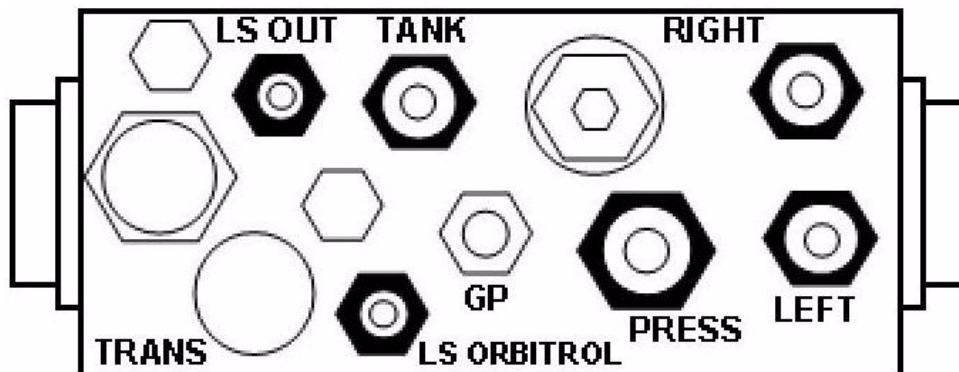


Figure 2-3 Steering Valve Port Identification



Note: The ports shown in *Figure 2-3* are upside-down relative to the ports shown in *Figure 2-2*.

Table 2-2 Valve Functions and Fitting Sizes

Hose Adapter	Fitting Type/Size
PRESS = PUMP PRESSURE (Power Beyond)	-8 ORFS
TANK = TANK / RETURN (Power Beyond)	-6 ORFS
LS ORBITROL = LS FROM ORBITROL	-4 ORFS
LS OUT = LS (Power Beyond)	-4 ORFS
LEFT = LEFT STEERING CYLINDER	-6 ORFS
RIGHT = RIGHT STEERING CYLINDER	-6 ORFS
GP = DIAGNOSTICS PORT	1/8"
TRANS = PRESSURE TRANSDUCER	-4 SAE ORB.

AutoSteer Valve Configuration for Installation

No changes are required to the steering valve's internal plug configuration for this installation. The valve may be installed in this application with the factory default setting as specified in *Table 2-3*. The location of the three internal plugs and orifices is identified by stamped numbers on the manifold.

Note: The internal plugs can be reached by first removing the larger external plug.

Table 2-3 Plug and Orifice Configuration Summary

Type of Installation	13A	13B	13C
Factory Default Configuration	Plug	Open	Plug

Note: The configuration summary provided in *Table 2-3* is used exclusively for troubleshooting purposes and to determine if a valve transferred from another vehicle may have been configured differently.

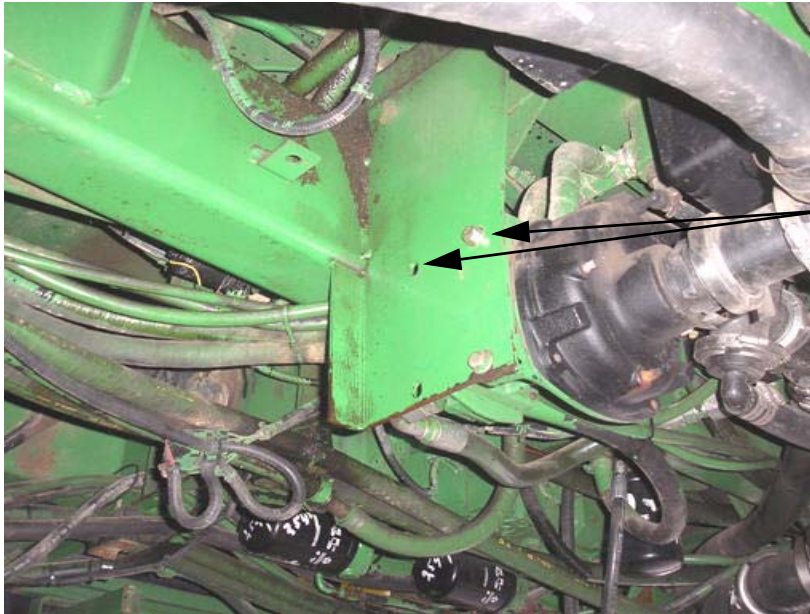
- This concludes the plug installation. The valve is now ready for vehicle installation.

Install the Valve Bracket

The valve is installed under the sprayer on the left side next to the product pump as shown in *Figure 2-4*. The AutoFarm hoses are connected to the Orbitrol and the vehicle's steering priority valve.

1. Locate a hole next to the product pump. See *Figure 2-4*.

Figure 2-4 Steering Valve Mounting Location



Steering Valve
Mounting Bolts

2. Install the valve bracket in the position shown in *Figure 2-5*.
3. Tighten the bolt. Use an extra bolt provided in the bracket kit.

Figure 2-5 Steering Valve Bracket Mounted



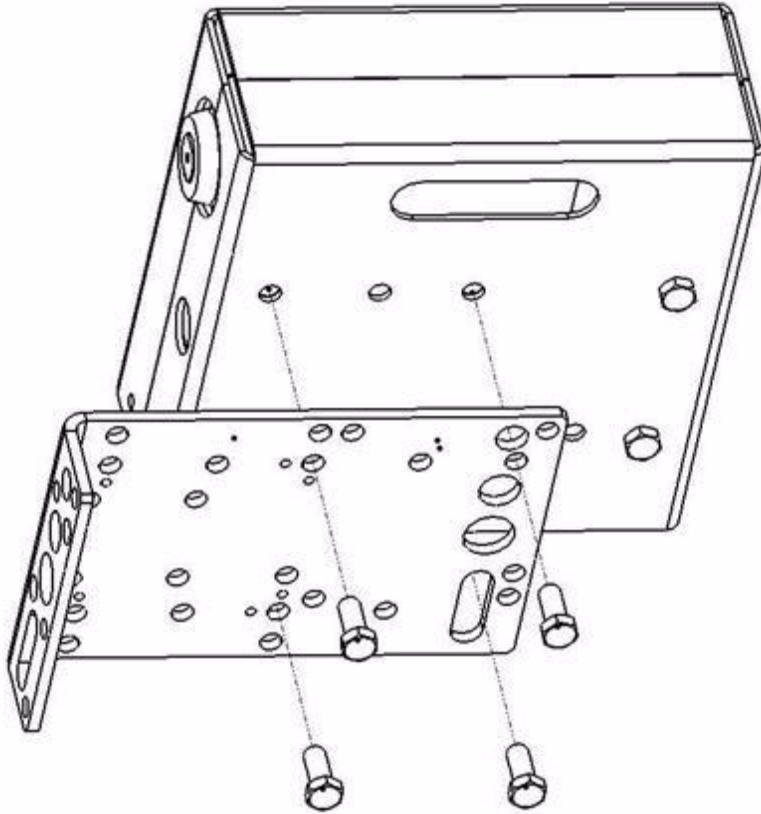
4. Install the valve in the position shown in *Figure 2-6*.

Figure 2-6 Steering Valve Mounted



5. Secure the valve onto the bracket in the position shown using four 5/16" hex screws. See *Figure 2-7*.
6. Tighten the four screws using a 1/2" ratchet wrench. See *Figure 2-7*.

Figure 2-7 Mounting Valve to Bracket



Hydraulic Hose Connection Overview

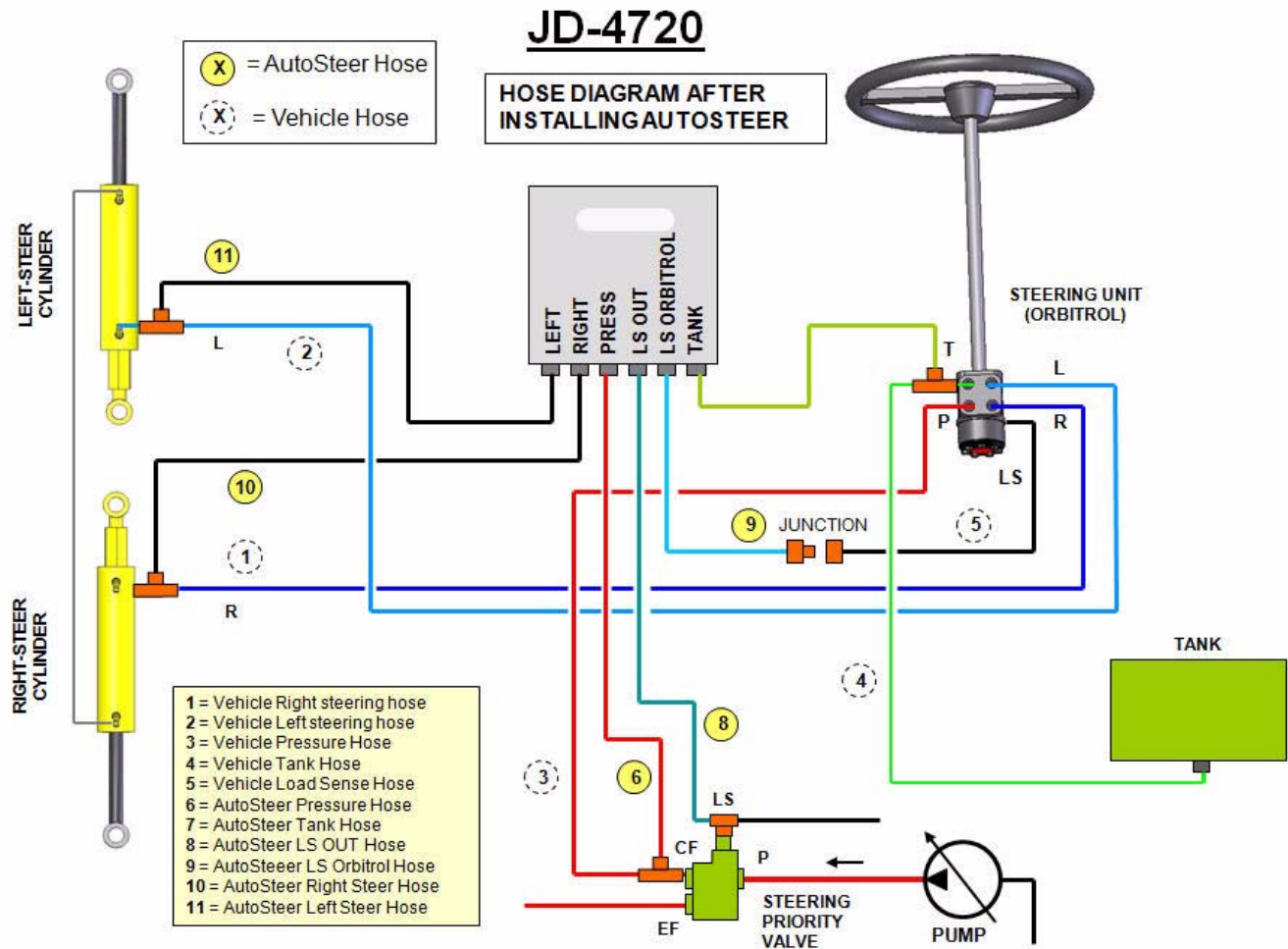
Note: Follow the order of installing hoses described below to enable easier hose connections on the AutoFarm valve. Refer to *Figure 2-8* for hose identification.

1. Connect a Long 3/8" hose from the TANK port on the AutoFarm valve to the Orbitrol Tank port.
 2. Connect a long 1/4" hose from the LS OUT port on the AutoFarm valve to the Priority Valve LS port.
 3. Connect a long 1/4" hose from the LS ORBITROL port on the AutoFarm valve to the Priority Valve Steering LS hose.
 4. Connect a long 1/4" hose from the RIGHT port on the AutoFarm valve to the right steering cylinder.
 5. Connect a long 3/8" hose from the AutoFarm valve PRESS port to the Priority Valve CF port.
 6. Connect a long 1/4" hose from the LEFT port on the AutoFarm valve to the Left steering cylinder.
 7. Double check all hose connections and confirm that they are connected correctly at both ends.
-

Note: It is very important that the Tank hose be correctly connected to allow proper operation of the AutoFarm relief valve.

8. Tighten all hose connections at both ends.

Figure 2-8 Hose Connection Diagram



Hydraulic Hose Connection Procedure

Note: The hoses must be connected in the correct order for best fit and ease of installation. Refer to the hose diagram in Figure 2-8 and the instructions in the *Hydraulic Hose Connection Overview* section on page 18 for detailed information on connecting the hydraulic hoses.

Access the Orbitrol

Some John Deere sprayers have a flat steel covers under the vehicle. You must first open or remove these covers before you install the AutoFarm valve and hoses. See Figure 2-9.

1. Remove two lynch pins on one side and swing the cover open to gain access under the machine.

Figure 2-9 Flat Panels Under Vehicle



Flat Access Panel

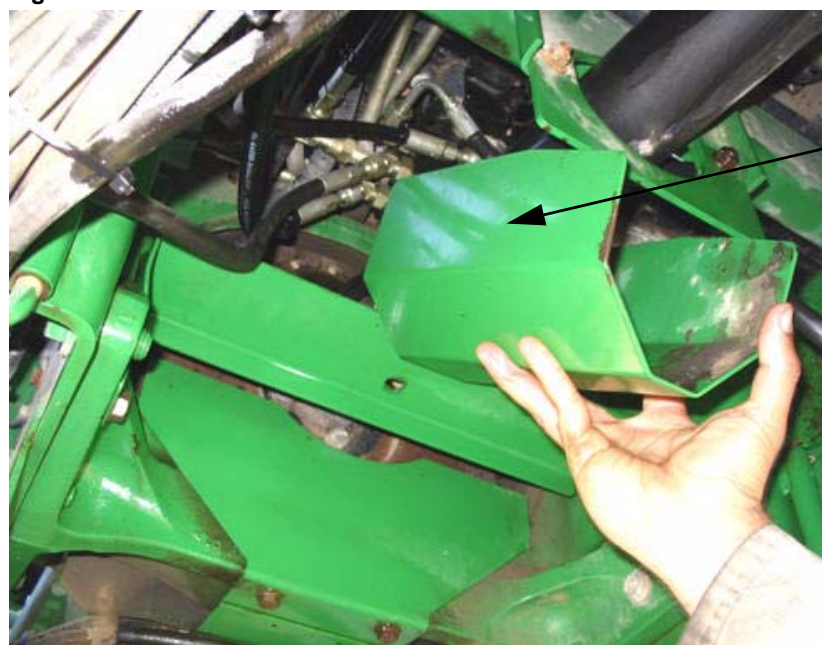
Note: The covers are secured with two lynch pins on each side. Access to the steering unit (Orbitrol) from under the vehicle is enabled by dropping this panel down.

Figure 2-10 Flat Panels Under Vehicle Opened



2. Remove the cover from the steering unit (orbitrol) from under the vehicle. See *Figure 2-11*.

Figure 2-11 Orbitrol Cover Removal



Orbitrol Cover

Note: Remove the two screws holding the cover.

Locating the Steering Priority Valve

The AutoFarm Pressure and Load Sense hoses will be connected to the vehicle's steering priority valve. The steering priority valve is located along the left frame outer side. See *Figure 2-12*. You must identify the priority valve ports before connecting the AutoFarm hoses.

Figure 2-12 Steering Priority Valve Location



Identifying Priority Valve Ports

Note: The position of the hose adapters on the steering priority valve may be slightly different depending on the exact sprayer model.

You must positively identify the **LS** port and **CF** port. There are engraved letters on the valve body identifying the ports.

Note: *Figure 2-13* shows the John Deere 4710 priority valve and *Figure 2-14* shows John Deere 4720 priority valve. The identified **LS** and **CF** ports are used for connecting AutoFarm hoses.

Figure 2-13 John Deere 4710 Steering Priority Valve

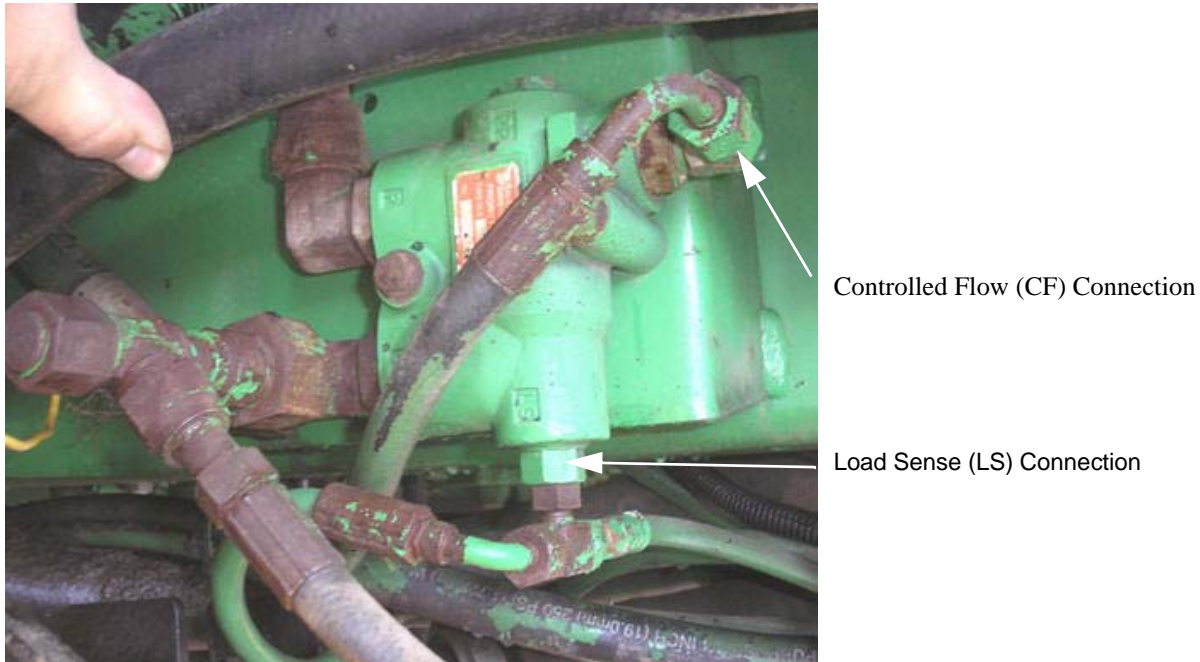



Figure 2-14 John Deere 4720 Steering Priority Valve



Orbitrol Tank Hose Connection

Access to the vehicle's Orbitrol tank hose is achieved from under the machine or from the front of the cab. To reach the Orbitrol from the left front side of the cab, you may have to open the engine hood and also remove plastic panels just ahead of the cab on the left side. A short ladder enables easier access to the Orbitrol from a standing position next to the engine.

	⚠ WARNING
	<p style="text-align: center;">Moving Parts</p> <p>Do not start the engine while working next to or under the engine. The removal of panels and shrouds exposes dangerous moving parts such as the main driveshaft. Stand clear of the vehicle or stay inside the cab before starting the engine. To avoid accidental engine startup by someone else, remove the key from the starter switch while working on the vehicle.</p>

Note: Refer to *Figure 2-8* and the *Hydraulic Hose Connection Overview* for information on how to connect the hoses. The hoses must be connected in the correct order for best fit and ease of installation.

Note: Keep all hoses and cables away from the driveshaft. Secure all hoses and cables in a protected position with cable ties.

1. Drop down the panel under the engine. See *Figure 2-15*.

Figure 2-15 Drop-Down Panel Under the Engine



2. Remove this driveshaft shroud for easier access to the Orbitrol.

Figure 2-16 Removing Driveshaft Shroud



3. Identify the Tank hose on the steering unit (Orbitrol) as shown in *Figure 2-17*.
4. The Orbitrol is located under the front of the cab and the best access is usually from the left side just ahead of the cab.
5. Remove the tank hose and install a Run Tee.

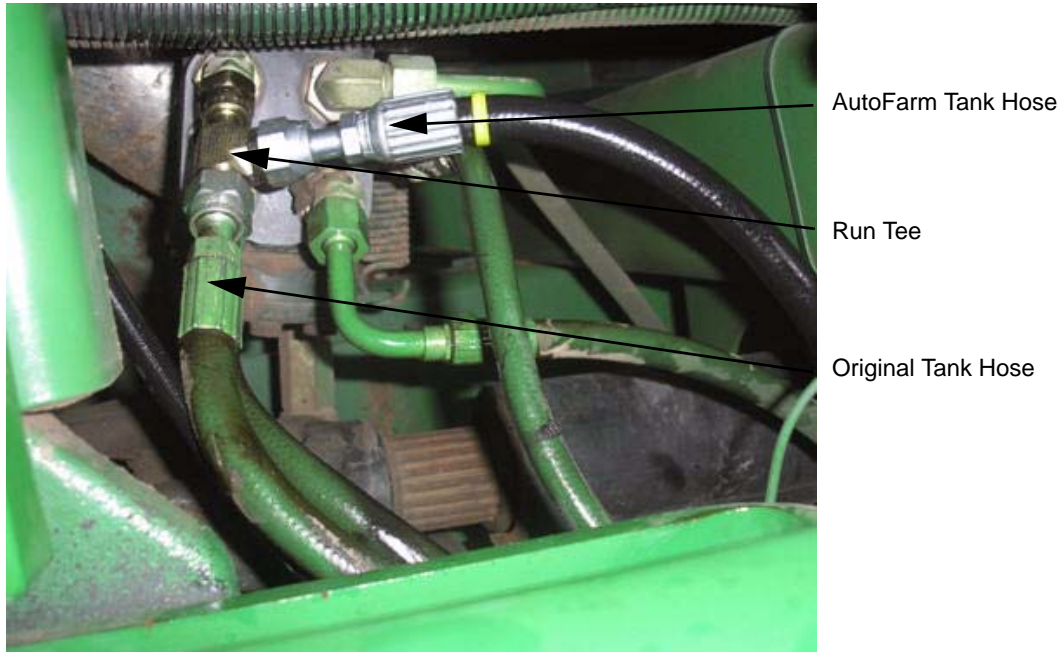
Figure 2-17 Orbitrol Tank Hose Connection



Original Tank Hose Connection

6. Connect the original Tank hose to the Run Tee. See *Figure 2-18*.
7. Connect the AutoFarm Tank hose from the TANK port on the AutoFarm valve to the Run Tee just installed on the Tank port.
8. Connect the AutoFarm Tank hose as shown in *Figure 2-18*.

Figure 2-18 Orbitrol Tank Port Run Tee Connections



9. Connect the other end of the AutoFarm tank hose to the TANK port on the AutoFarm valve Tank port as shown in *Figure 2-19*.

Figure 2-19 AutoFarm Steering Valve Tank Port Connection

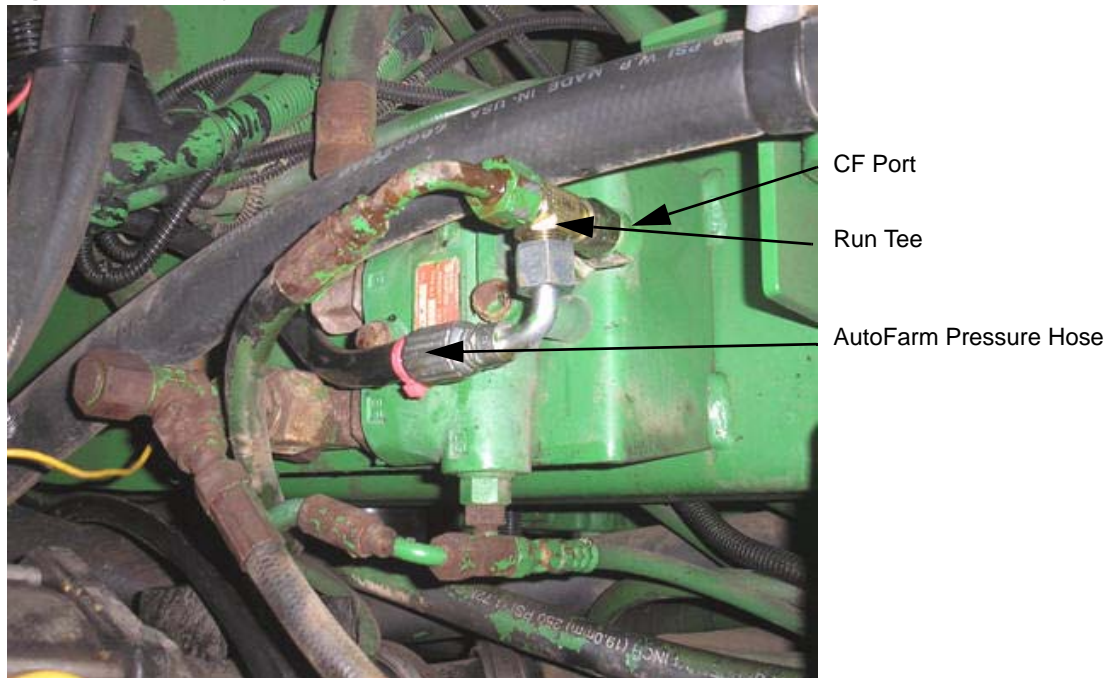


Orbitrol Pressure Hose Connection

1. Identify the priority valve CF port. See *Figure 2-20*.
2. Remove the steering Pressure Hose from the priority valve CF port.
3. Install a -6 ORFS Run Tee on the CF port.
4. Connect the original Pressure hose back on the Run Tee. See *Figure 2-20*.
5. Connect the AutoFarm pressure hose to the run tee. See *Figure 2-20*.

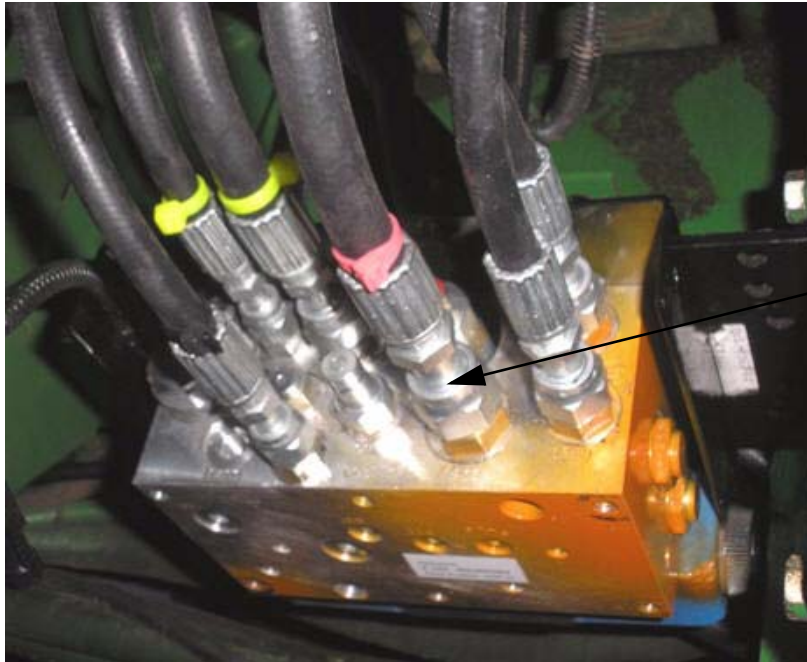
Note: The exact location of the “CF” port may be different than shown, depending on the sprayer model. Always identify the “CF” port before installing the hose.

Figure 2-20 Priority Valve Pressure Port



6. Connect the AutoFarm pressure hose to the PRESS port on the AutoFarm valve. See *Figure 2-21*.

Figure 2-21 Steering Valve Pressure Port Connection



Pressure Port

Note: The AutoFarm Steering Valve Pressure port uses a size 8 hose adapter.

Right Steering Hose Connection

Note: Refer to *Figure 2-8* and the *Hydraulic Hose Connection Overview* for information on how to connect the hoses. The hoses must be connected in the correct order for best fit and ease of installation.

1. Disconnect the Right steer hose on the right steering cylinder located on the left side of the sprayer. See *Figure 2-22*.

Note: The steering cylinder located on the left side of the sprayer actually steers to the Right so we refer to it as the “Right Steer Cylinder”, even though it is actually located on the vehicle’s left side.

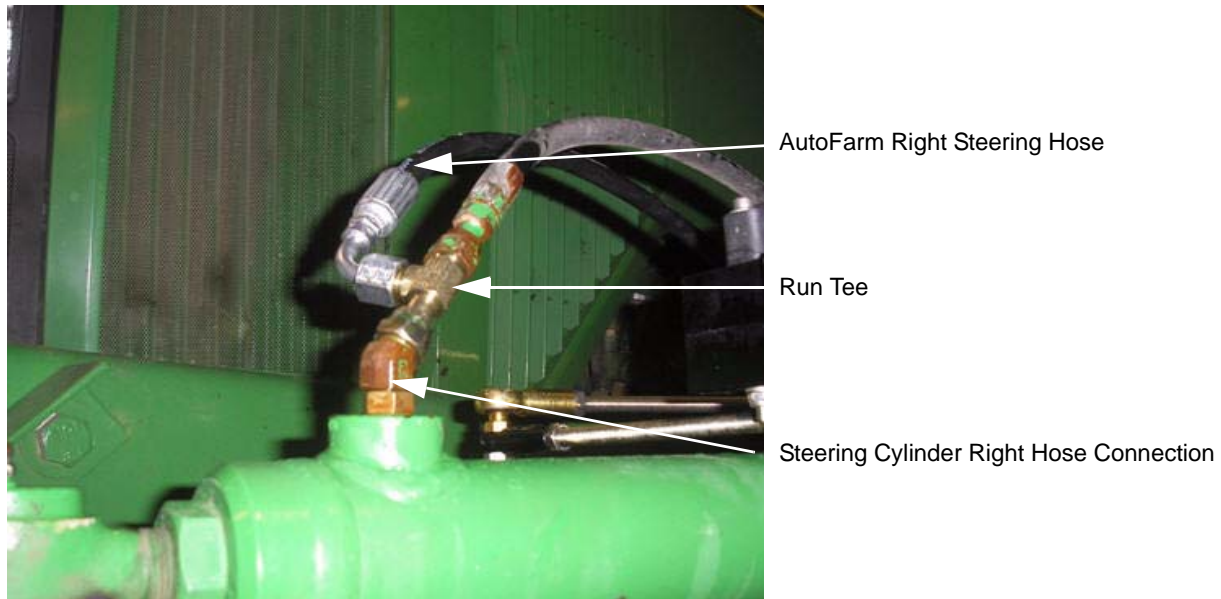
Figure 2-22 Right Steering Cylinder Connection



Right Steering Connection

2. Loosen the original steering hose. See *Figure 2-23*.
3. Install a Run Tee adapter. See *Figure 2-23*.
4. Reconnect the original hose to the end of the Run Tee adapter. See *Figure 2-23*.
5. Connect the AutoFarm Right steering hose to the Run Tee adapter. See *Figure 2-23*.
6. Route the AutoFarm hose along the original steer hose and secure with cable ties.

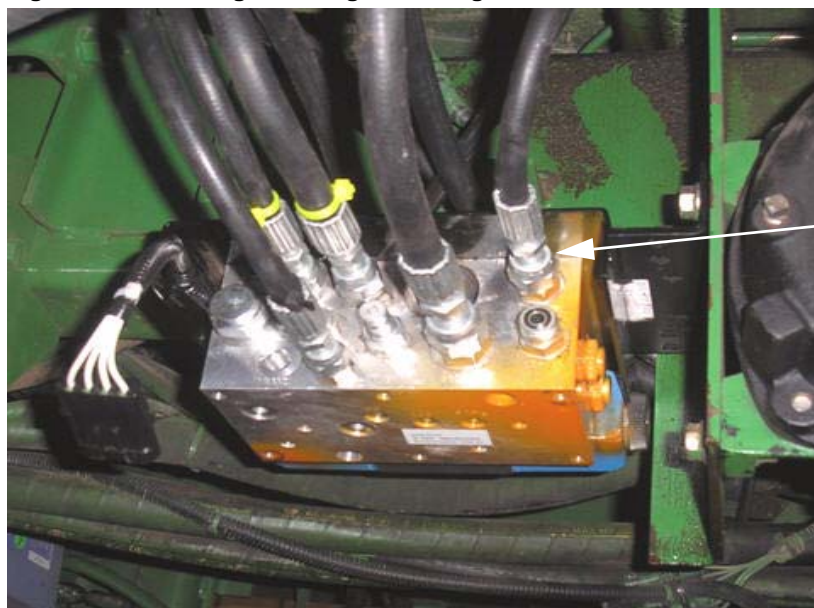
Figure 2-23 Steering Cylinder Hose Connection



Note: The AutoFarm steer hoses must be routed along the original steer hoses with sufficient play to enable adjustment of the thread width (axle width).

7. Connect the AutoFarm Right steer hose to the RIGHT port on the AutoFarm valve. See *Figure 2-24*.

Figure 2-24 Steering Valve Right Steering Connection



Right Steering Connection

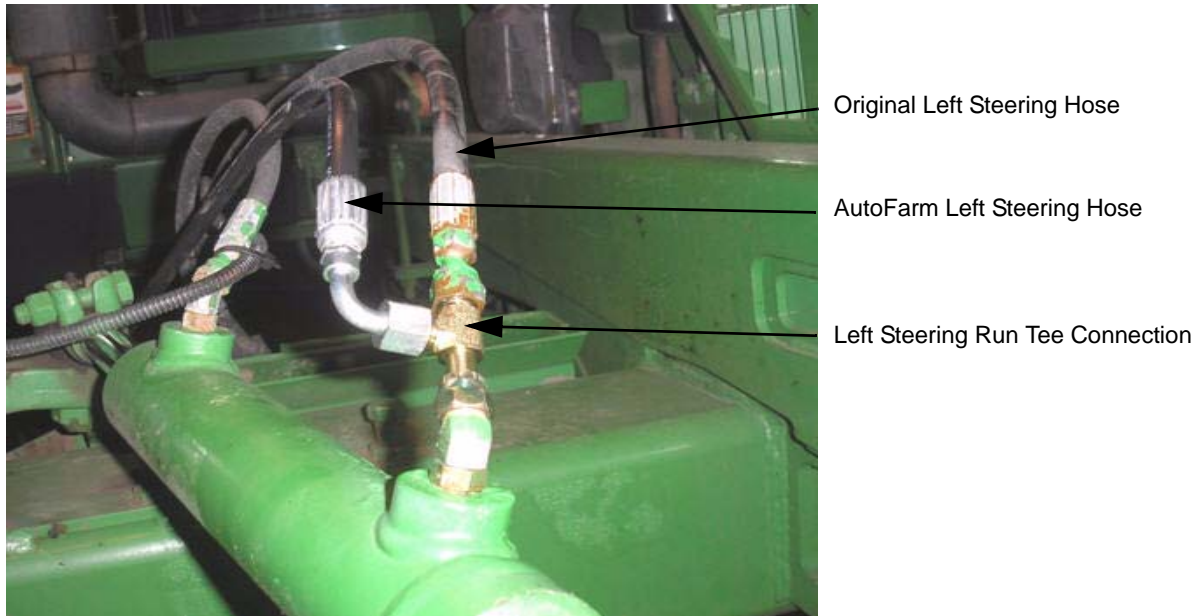
8. Tighten the hose fittings.

Left Steering Hose Connection

Note: Refer to *Figure 2-8* and the *Hydraulic Hose Connection Overview* for information on how to connect the hoses. The hoses must be connected in the correct order for best fit and ease of installation.

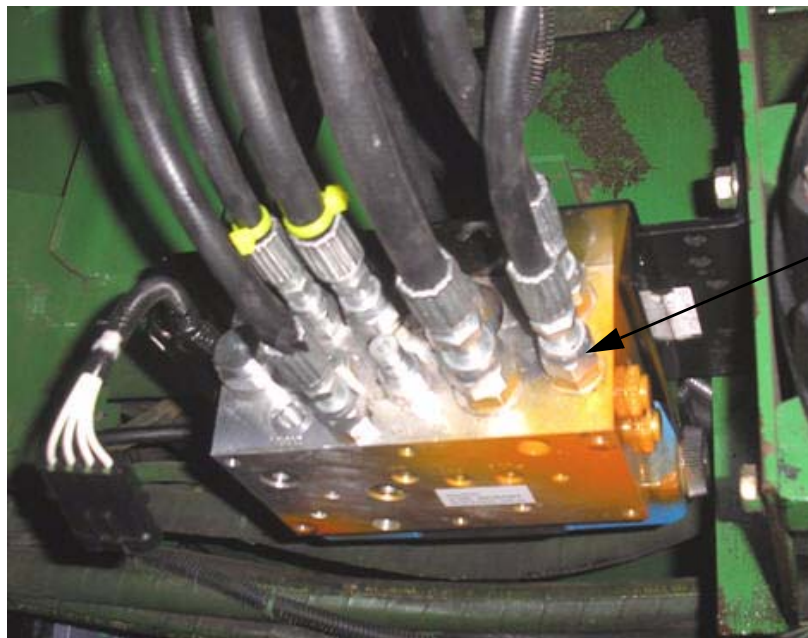
1. Locate the Left steering hose connected to the steering cylinder. See *Figure 2-25*.
2. Loosen the original Left steering hose.
3. Install a Run Tee adapter. See *Figure 2-25*.
4. Reconnect the original Left steering hose to the Run Tee adapter end.
5. Connect the AutoFarm left steer hose to the side of the Run Tee. See *Figure 2-25*.

Figure 2-25 Steering Valve Left Steering Adapter Connection



6. Route the hose so that it does not get pinched when the wheels turns from full left to full right.
7. Connect the AutoFarm left steer hose to the AutoFarm valve LEFT port. See *Figure 2-26*.

Figure 2-26 Steering Valve Left Steer Connection



8. Tighten the hose fittings.

Orbitrol Load Sense Signal Hose Connection

The Load Sense hose is connected from the vehicle's priority valve to the AutoFarm valve Steering LS line. This hose provides a pressure signal to kick-out AutoSteer when the driver turns the steering wheel.

Note: Refer to *Figure 2-8* and the *Hydraulic Hose Connection Overview* for information on how to connect the hoses. The hoses must be connected in the correct order for best fit and ease of installation.

1. Locate the Load Sense connection on the vehicle's priority valve. See *Figure 2-27*.

Note: This is the steering Load Sense line that will be opened for installing the AutoFarm LS hose.

Note: There are usually two LS hoses connected to a tee adapter on the LS port on the priority valve. You must disconnect the correct LS hose that goes towards the steering unit (Orbitrol). To positively identify the correct hose, follow the hose all the way to the steering unit (Orbitrol). Disregard the second original hose connected to the tee.

Figure 2-27 Priority Valve Load Sense Connection



Load Sense Connection

Note: Clean this hose connection thoroughly with high pressure water or other means before opening to avoid oil contamination.

2. Disconnect the original steering LS hose from the steering priority valve.
3. Connect the AutoFarm LS OUT hose to the existing tee adapter on the priority valve LS port as shown in *Figure 2-28*.

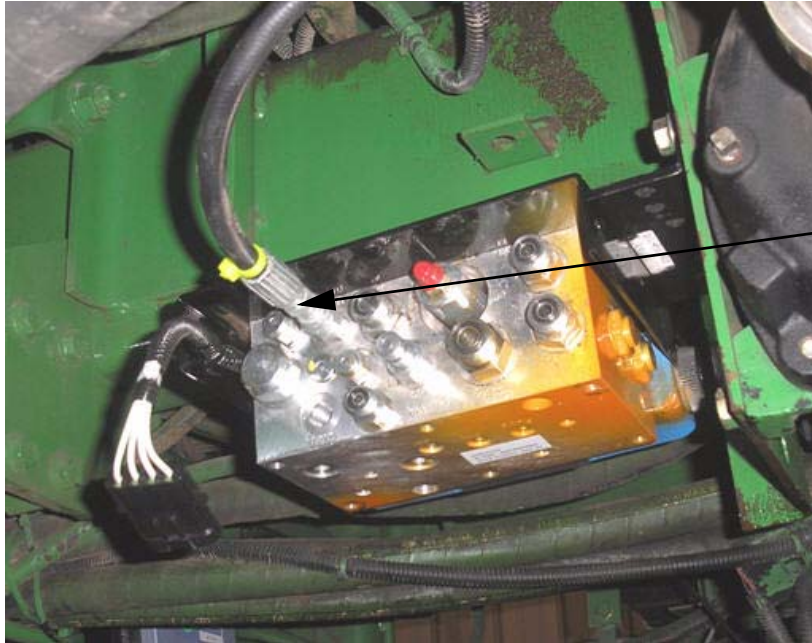
Figure 2-28 AutoFarm LS Out Hose Connected



LS Out Hose Connection

4. Route the other end of the hose towards the AutoFarm valve along the vehicle's left frame.
5. Connect the other end of the AutoFarm LS OUT hose to the AutoFarm valve LS OUT port. See *Figure 2-29*.

Figure 2-29 Steering Valve LS Out Port Connection



LS Out Port Connection

6. Tighten all hose fittings.

LS Orbitrol Connection

1. Connect the AutoFarm LS ORBITROL to the machine's original LS hose which was previously disconnected from the priority valve. See *Figure 2-30*.

Note: The AutoFarm LS Orbitrol hose has a male ORFS fitting on one end to mate with the vehicle's LS hose.

Note: Once this hose is connected, the Orbitrol's LS port is connected directly to the AutoFarm valve LS Orbitrol port. You may confirm this important connection by following the LS hose all the way from the Orbitrol to the AutoFarm valve LS ORBITROL port.

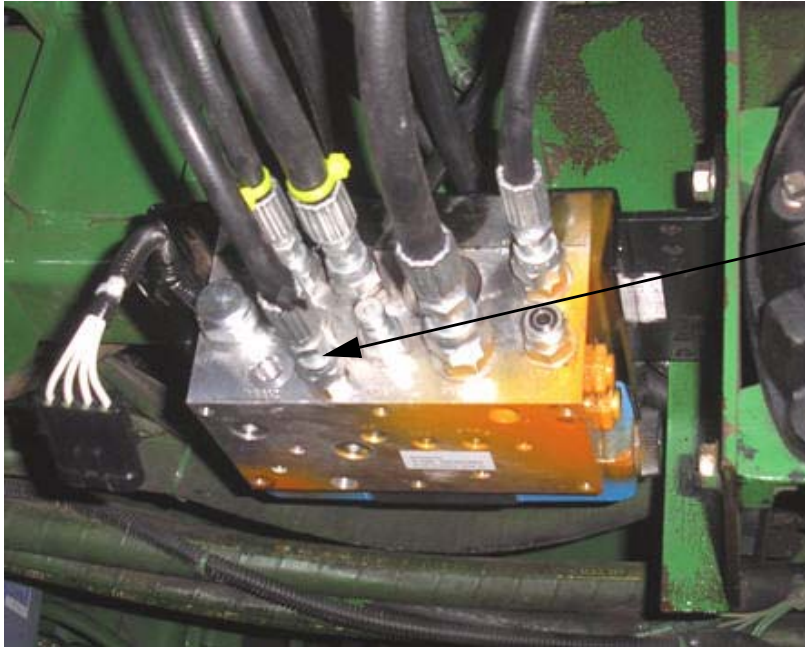
Figure 2-30 LS Orbitrol Connection



AutoFarm LS Out Hose Connection

2. Route the hose along the left frame in a protected position.
3. Connect the other end of the AutoFarm LS Orbitrol hose to the AutoFarm valve LS ORBITROL port. See *Figure 2-31*.

Figure 2-31 Steering Valve LS Orbitrol Connection



LS Orbitrol Connection

Pressure Transducer

1. Install the pressure transducer on the Steering Valve TRANS port. See *Figure 2-32*.

Note: Do not overtighten the Pressure transducer.

2. Tighten the pressure transducer with a $\frac{3}{4}$ " wrench.
3. Connect the short transducer harness to the transducer. See *Figure 2-32*.

Note: Loop the excess harness inside the rear valve cover and secure with a small cable tie using the two holes on the rear Steering Valve cover.

Figure 2-32 Pressure Transducer Installation

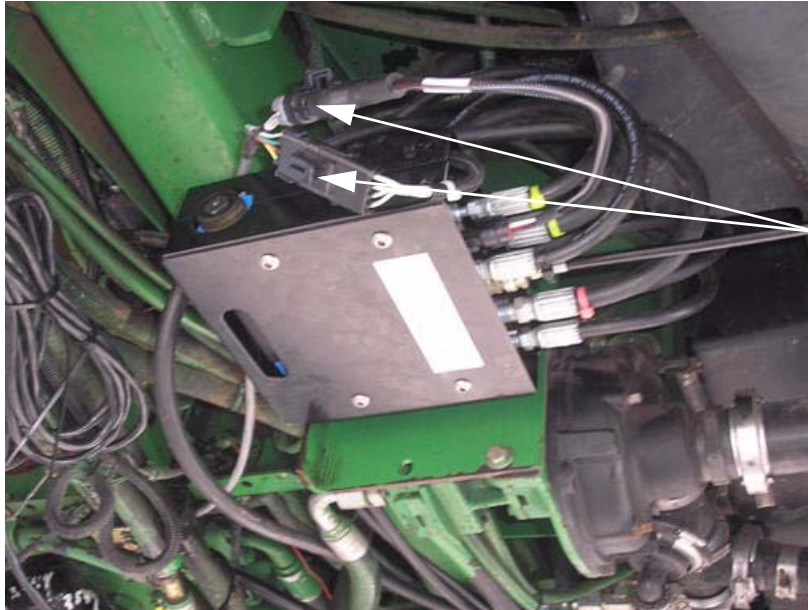


Pressure Transducer Installation

4. Connect the 4-pin connector and 10-pin connector to the SAM harness. See *Figure 2-33*.

Note: Secure the transducer cable and connector with cable ties in a protected position.

Figure 2-33 Valve Cable Connection



Transducer Cable and Connectors

Hydraulic Checklist Before Proceeding to Startup

1. Ensure the valve bracket bolts are tight.
2. Ensure the mounting screws securing the valve are tight.
3. Ensure the Pressure hose is connected to correct port on AutoFarm Valve and vehicle.
4. Ensure the Tank hose is connected to correct port on AutoFarm valve and Orbitrol.
5. Ensure the LS-OUT hose connected to correct port on AutoFarm valve and vehicle.
6. Ensure the LS ORBITROL hose is connected to correct ports at both ends.
7. Ensure the Right steer hose connected correctly at both ends.
8. Ensure the Left steer hose connected correctly at both ends.
9. Ensure the Pressure transducer is installed and tight.
10. Ensure all hose fittings are tight.
11. Ensure proper hose routing and cable tie placement on all hoses.
12. Ensure the SAM harness is connected to the two valve connectors.
13. Ensure the 5000psi pressure gauge is installed on the valve test port.

Wheel Angle Sensor (WAS) Installation

This **Wheel Angle Sensor Installation** chapter provides information in the following sections:

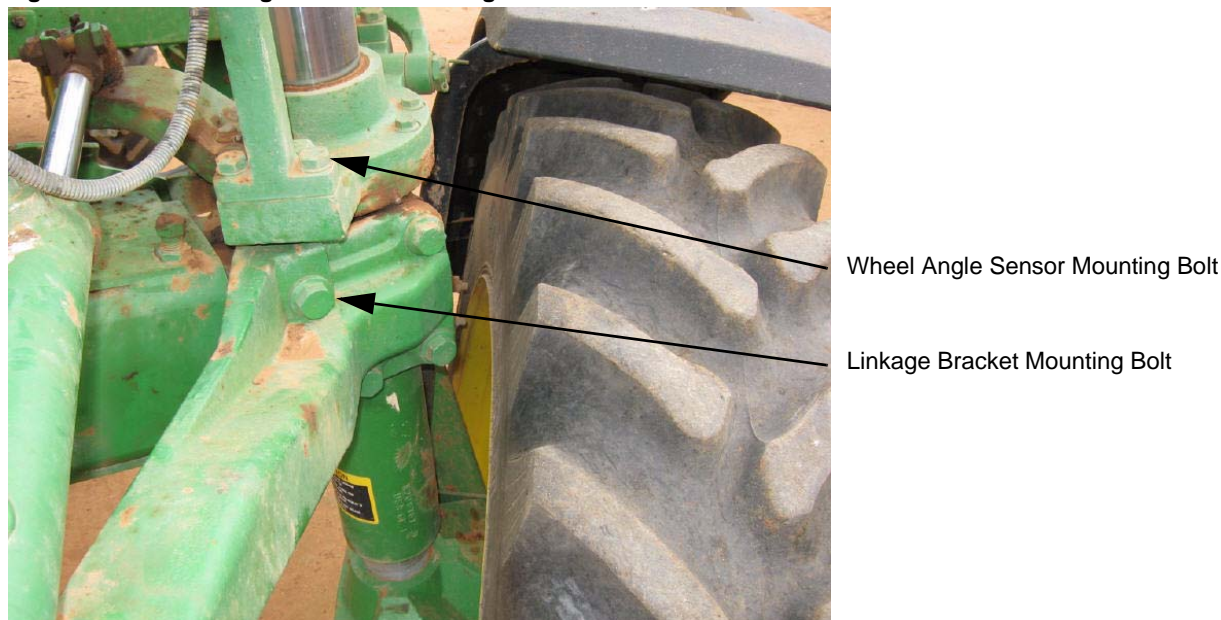
- *Mounting Wheel Angle Sensor Hardware*
- *Cutting the Linkage Rods to Length*
- *Assembling Linkage Rod Hardware*
- *Attaching and Adjusting Wheel Angle Sensor Linkage Rods*

Mounting Wheel Angle Sensor Hardware


1. Identify the Wheel Angle Sensor location.

Note: The Wheel Angle Sensor is mounted on the front steer axle on the left hand side. The Wheel Angle Sensor bracket is bolted to the suspension support mounting bolts and the linkage bracket is bolted to the steering arm mounting bolts.

Figure 3-1 Wheel Angle Sensor Mounting Location



Note: You must remove pressure from air spring suspension before beginning Wheel Angle Sensor bracket installation.

	<p style="text-align: center;">⚠ WARNING</p> <p>To avoid injury or death by the sudden detachment of vehicles parts, release the air pressure from the air spring suspension before loosening the Wheel Angle Sensor mounting bolts.</p>
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2. Locate the air valve on top of the air bag spring, release all air pressure. See *Figure 3-2*.

Figure 3-2 Releasing Air Spring Suspension Air Pressure

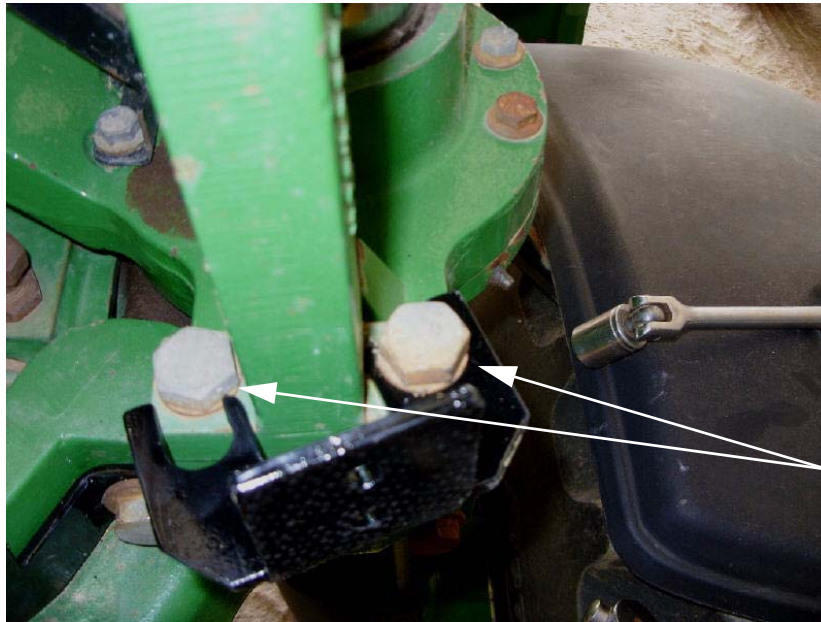


3. Attach the wheel angle sensor bracket as shown using existing suspension support bolts. See *Figure 3-3*.

Note: Do not remove the bolts from the suspension support as it may present a hazard and be difficult to replace the bolts. Only loosen the bolts enough to slide the Wheel Angle Sensor bracket under the bolt heads.

4. Loosen one bolt using a 24mm socket and breaker bar, slide bracket under washer.
5. Re-tighten the first bolt enough to enable the bracket to be rotated.
6. Loosen other bolt enough to rotate bracket into place. See *Figure 3-3*.

Figure 3-3 Sliding Wheel Angle Sensor Bracket Under Loosened Bolts



Loosened Mounting Bolts

7. Tighten the mounting bolts using a 24mm socket and breaker bar. See *Figure 3-4*.

Note: Inflate air spring suspension according to the John Deere Operators Manual.


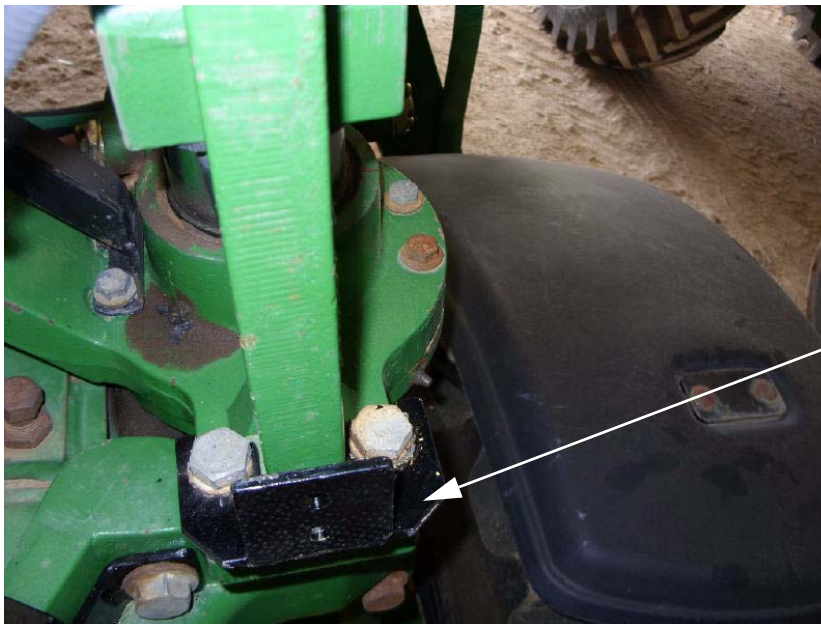
	<p style="text-align: center;">⚠ WARNING</p> <p>To avoid injury or death do not overinflate the airspring suspension. The air spring can explode if overinflated. Refer to the John Deere User Manual instructions before inflating the air suspension.</p>
---	--

Figure 3-4 Wheel Angle Sensor Bracket Installed



Bracket Installed

8. Attach wheel angle sensor to bracket. See *Figure 3-5*.
9. Tighten bolts with a 9/16" wrench. See *Figure 3-5*.

Figure 3-5 Attaching Wheel Angle Sensor to the Bracket



10. Remove the top inner bolt on the steering arm using a 3/4" (30mm) drive socket and breaker bar. See *Figure 3-6*.

Figure 3-6 Removing the Linkage Bracket Mounting Bolt



11. Attach the linkage bracket to the axle assembly and retighten the bolt using a 3/4" drive, 30mm socket and breaker bar. See *Figure 3-7*.

Figure 3-7 Tightening Linkage Bracket Mounting Bolt



Cutting the Linkage Rods to Length

Note: Before cutting the linkage rods, verify the wheel angle sensor brackets will attach to the vehicle as shown in this manual and they are attached the correct distance from any reference points shown. If this is not possible, do not cut the rods until it is determined if these lengths will work for your installation. Due to possible variations in the mounting positions, these measurements could be different. These measurements are provided as a reference only. The installer is responsible for ensuring the rods are cut to the proper length.

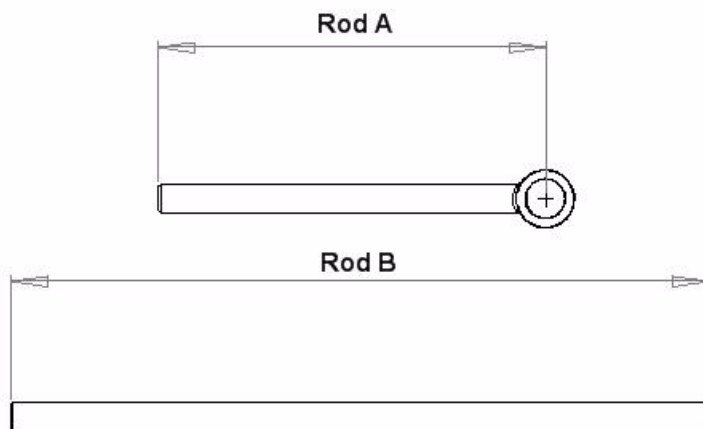
1. Measure and mark the two linkage rods for cutting, according to the length shown in *Table 3-1*.

Note: *Figure 3-8* shows the measurement points used to properly cut the linkage rods.

Table 3-1 Linkage Rod Cut Lengths

Item	Length
Rod A	7.87 inches (200 mm)
Rod B	8.66 inches (220 mm)

Figure 3-8 Linkage Rod Cut Length Measurement Points



2. Use a hack saw to cut the linkage rod to length while it is held in a bench vise. See *Figure 3-9*.

Figure 3-9 Linkage Rod Cutting

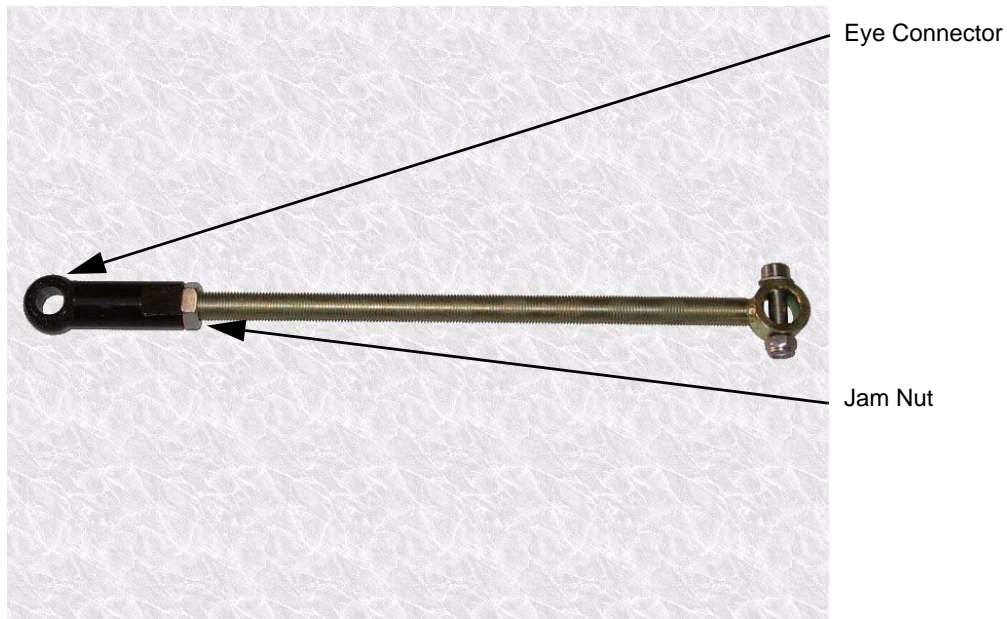


Assembling Linkage Rod Hardware

1. Attach a jam nut to the end of Rod A. See *Figure 3-10*.
2. Connect the eye connector to the end of the wheel angle sensor rod. As shown in *Figure 3-10*.

Note: The threaded rods must be cut to the correct lengths before final assembly.

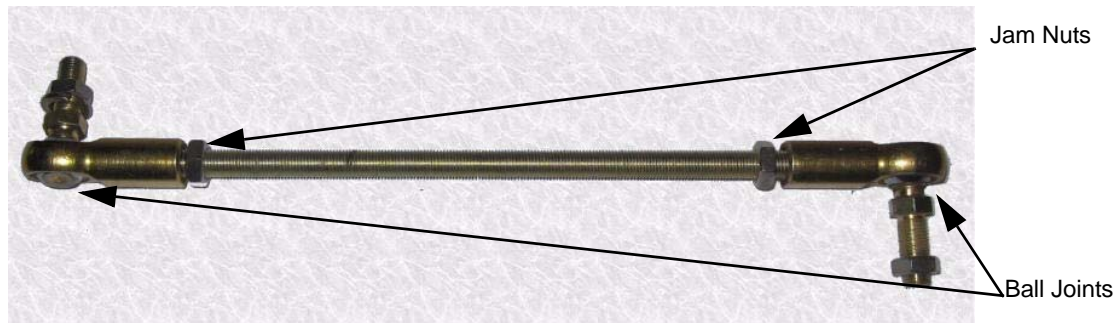
Figure 3-10 Rod A Assembled



3. Attach the jam nuts to each end of linkage Rod B
4. Attach the ball joints to both ends of the linkage arm as shown in *Figure 3-11*.

Note: The bolts for the ball joints should be facing the opposite direction as shown in *Figure 3-11*.

Figure 3-11 Linkage Rod Assembled

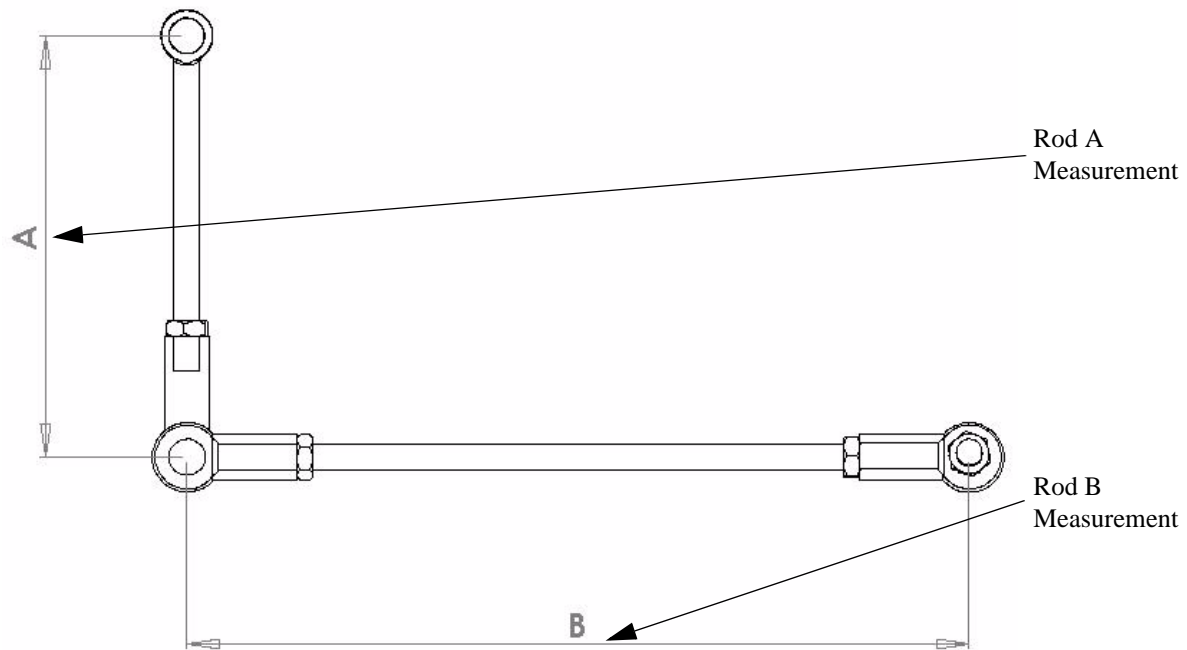


Note: The linkage rod after-assembly center-to-center lengths are shown in *Table 3-2*. *Figure 3-12* shows the measurement points for the assembled linkage rods.

Table 3-2 Assembled Linkage Rod Length

Item	Length
Rod A	8.85" (225mm)
Rod B	10.62" (270mm)

Figure 3-12 Linkage Rod Measurement Points (Assembled)



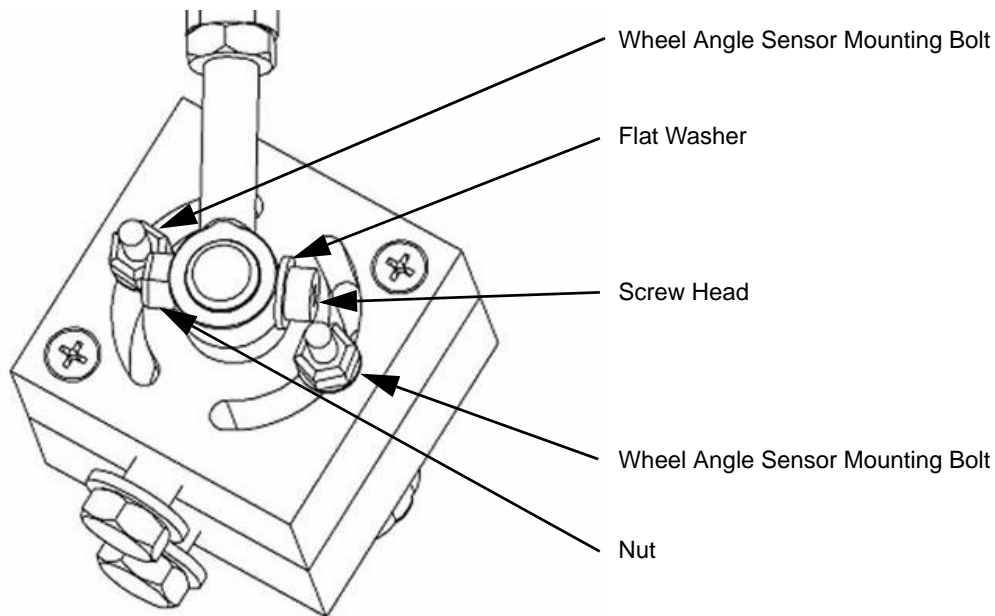
Attaching and Adjusting Wheel Angle Sensor Linkage Rods

1. Attach the Wheel Angle Sensor linkage rod to the Wheel Angle Sensor. See *Figure 3-13*.

Note: Leave the Wheel Angle Sensor mounting bolts loose so the sensor can be rotated after installation on the vehicle.

2. Ensure a flat washer is placed under the screw head when attaching the linkage rod to the sensor shaft. See *Figure 3-13*.

Figure 3-13 Washer on Shaft Screw

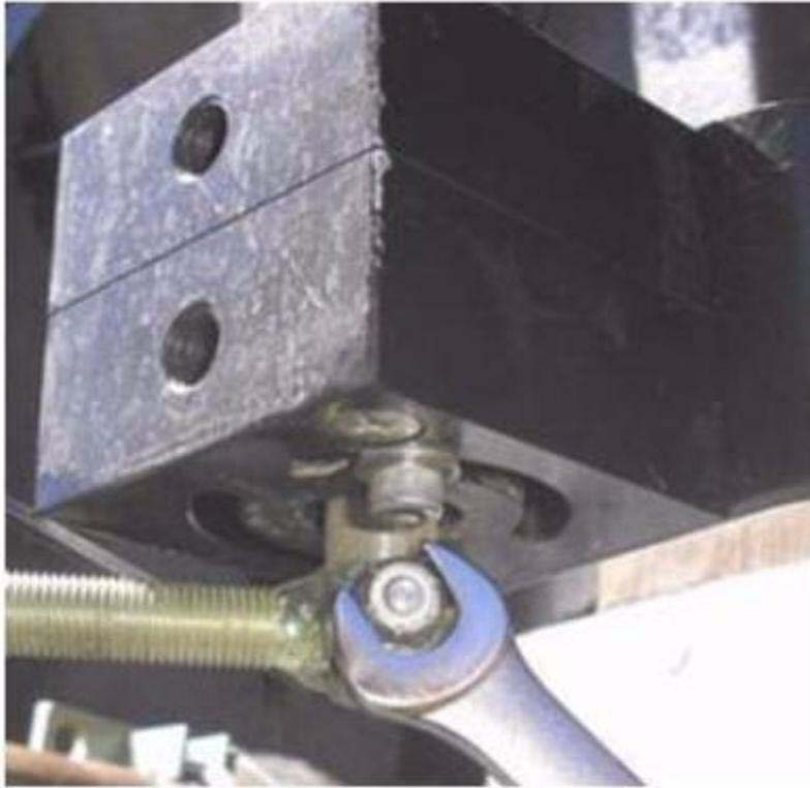


Note: The washer should be on the bolt head side and not the nut side of the assembly.

Note: Do not turn the steering system or drive the vehicle before the wheel angle sensor has been adjusted using the AutoSteer Calibration screens. The potentiometer can only rotate a maximum of 180 degrees and if it is rotated beyond its mechanical stops, it will be permanently damaged.

3. Tighten the linkage rod mounting bolt with a 3/8" wrench and 1/8" Allen wrench. See *Figure 3-14*.

Figure 3-14 Linkage Rod Mounting Bolt Tightening



4. The linkage rod should point towards the vehicle front. See *Figure 3-15*.

Figure 3-15 Mounted Linkage Rod




5. Attach the linkage arm to the linkage bracket and tighten the ball joint to the bracket with a 1/2" and 9/16" wrench. See *Figure 3-16*.

Note: Do not attach linkage rod to Wheel Angle Sensor linkage rod now.

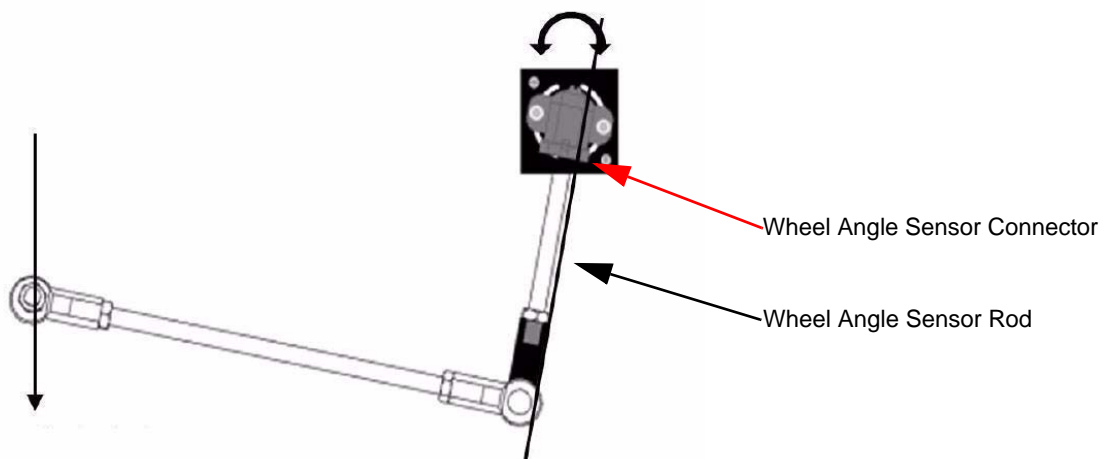
Figure 3-16 Linkage Rod Attached to Bracket



	<p style="text-align: center;">⚠ WARNING</p> <p>Always shut down the vehicle when working around the steering axle and checking and adjusting the wheel angle sensor rod lengths. The steering axle could move suddenly and cause severe injury or death.</p>
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6. With the linkage rods disconnected, turn the steering wheel so that the wheels are centered (the vehicle will travel straight ahead when moving).
7. Temporarily attach the linkage rods.
8. Rotate the wheel angle sensor potentiometer on top of the mounting block so that the wire connector is parallel to the wheel angle sensor rod. See *Figure 3-17*.
9. Tighten the potentiometer bolts with a 3/8" wrench and 5/32" Allen wrench.

Figure 3-17 Adjusting Potentiometer Angle



10. Disconnect the linkage rods and turn the steering wheel manually to the full left position. See *Figure 3-18*.
11. Reattach the linkage assembly and verify that the sensor will not be damaged. See *Figure 3-18*.
12. Adjust the rod lengths as necessary.

Figure 3-18 Wheel Angle Sensor Full Left Position linkage rods shown attached)



Linkage Rods

13. Disconnect the linkage rods and turn the steering wheel manually to the full right position. See *Figure 3-19*.
14. Reattach the linkage assembly and verify that the sensor will not be damaged. See *Figure 3-19*.
15. Adjust the rod lengths as necessary.

Figure 3-19 Wheel Angle Sensor Full Right Position linkage rods shown attached)



16. Rotate the sensor, adjust the length of either linkage arm and/or reposition the sensor mounting bracket on the vehicle frame (if necessary) to get the maximum sensor movement.
17. Test the remaining linkage arm for length at hard left and hard right to ensure sensor travel is not exceeded.

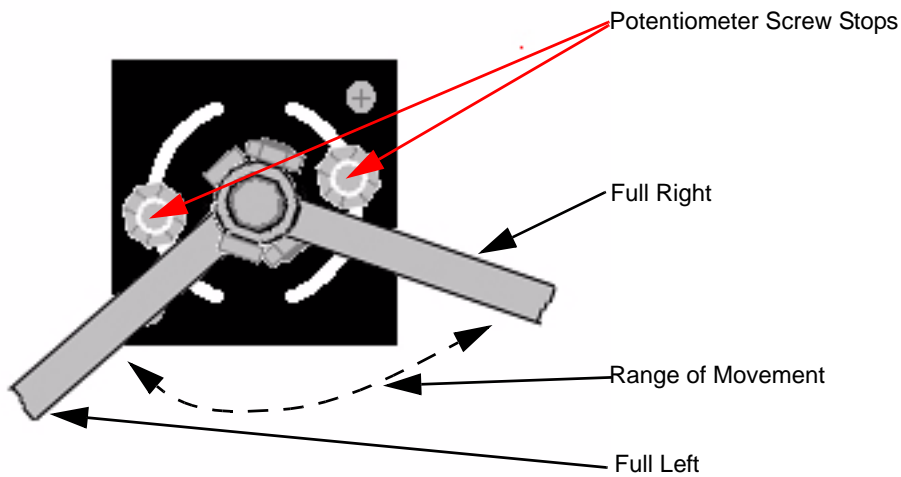
Note: The maximum movement is reached when the Wheel Angle Sensor rod sweeps from approximately 3/16 inch (5mm) from both stop bolts when the steering system is turned to the maximum right and left positions. See *Figure 3-20*.

18. Repeat *Step 7.* through *Step 14.* until the rod lengths have been adjusted and the potentiometer is centered to get the maximum sensor movement. See *Figure 3-20*,

Note: The wheel angle sensor rod should move from one screw stop to the other when the steering wheel is turned full left to right to get the maximum counts.

19.

Figure 3-20 Maximum Sensor Movement (as seen from bottom)

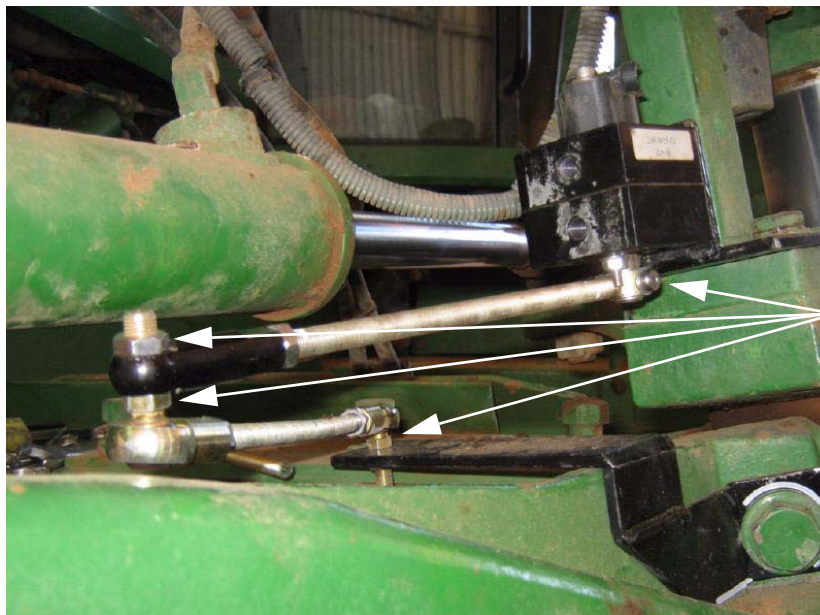


Note: An Ohm meter can also be used to determine if there is enough sensor movement. Connect the Ohm meter to pins A and B of the Wheel Angle Sensor. Measure the Ohm reading at the maximum left and right position. After subtracting the smaller number from the larger number, there should be at least a 3.75 kilohms change. The reading should also never go below 1.6 kilohms or higher than 6.6 kilohms as this is reaching the limits of the potentiometer and could damage the sensor.

20. After the adjustments are complete, tighten all lock nuts and bolts on the linkage and wheel angle sensor rod.

Note: A 1/2" and two 9/16" wrenches are required to tighten all the connections.

Figure 3-21 Wheel Angle Sensor Bolt Locations

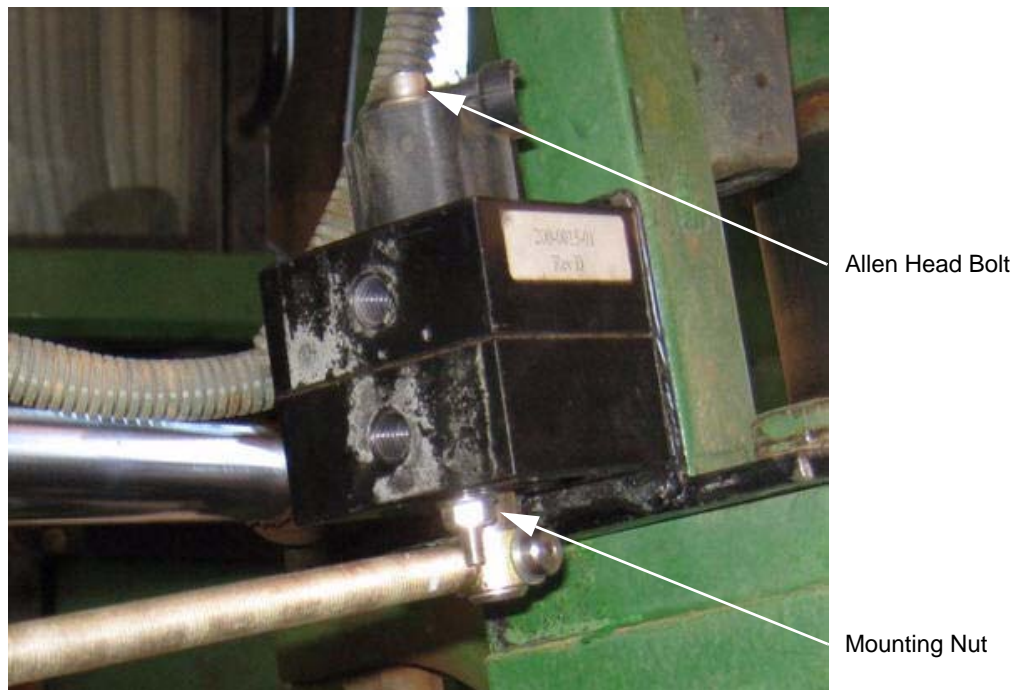


Nuts and Bolts to Tighten

21. Tighten the two screws securing the potentiometer to the wheel angle sensor, after final adjustments. See *Figure 3-22*.

Note: Use a 1/8" hex key and a 3/8" wrench.

Figure 3-22 Potentiometer Mounting Bolts



SA Module Installation

This **SA Module Installation** chapter contains information in the following sections:

- *Mount the SA Module Bracket*
- *Mount the SA Module*

Mount the SA Module Bracket

Note: The SA Module may be installed under the cab or other alternative positions. If an alternative location is required, choose a location where the SA Module can be protected from damage from moving parts or crop debris and excessive moisture from weather and cleaning equipment.

1. Locate an appropriate position for mounting the SA Module. See *Figure 4-1*.

Figure 4-1 SA Module Mounting Location



Mounting Location

Mount the SA Module Bracket

2. Open the front bash plate by removing the clip retaining the pin and removing the pin. See *Figure 4-2*.

Figure 4-2 SA Module Mounting Location



Retaining Clip and Pin

3. The SA Module mounting location is shown in *Figure 4-3*.

Figure 4-3 SA Module Mounting Location



Mounting Location

4. Prepare the SA Module bracket for installation by attaching two screws on the "L" bracket side of the bracket.

Note: Do not tighten screws. Leave enough space for the SA Module to fit beneath the screws.

Figure 4-4 SA Module Bracket Screws



5. Remove the bolt and nut as shown in *Figure 4-5*.

Figure 4-5 Removing Existing Bolt for SA Module Bracket Mounting



6. Place the SA Module bracket then re-install the bolt and nut and tighten as shown in *Figure 4-6*.

Figure 4-6 SA Module Bracket Mounted



SA Module Mounting Screws

SA Module Bracket Bolt

Mount the SA Module

1. Slide the SA Module into place to mount the SA Module to the bracket.
2. Mount it by installing the other two screws and tighten all four with a #2 stubby Phillips screwdriver to secure the SA Module. See *Figure 4-7*.

Note: *Figure 4-8* and *Figure 4-9* show the correct and incorrect SA Module installation orientation.

Figure 4-7 SA Module Installed



Mounting Screws
(two more on opposite side)

Figure 4-8 Correct SA Module Orientation

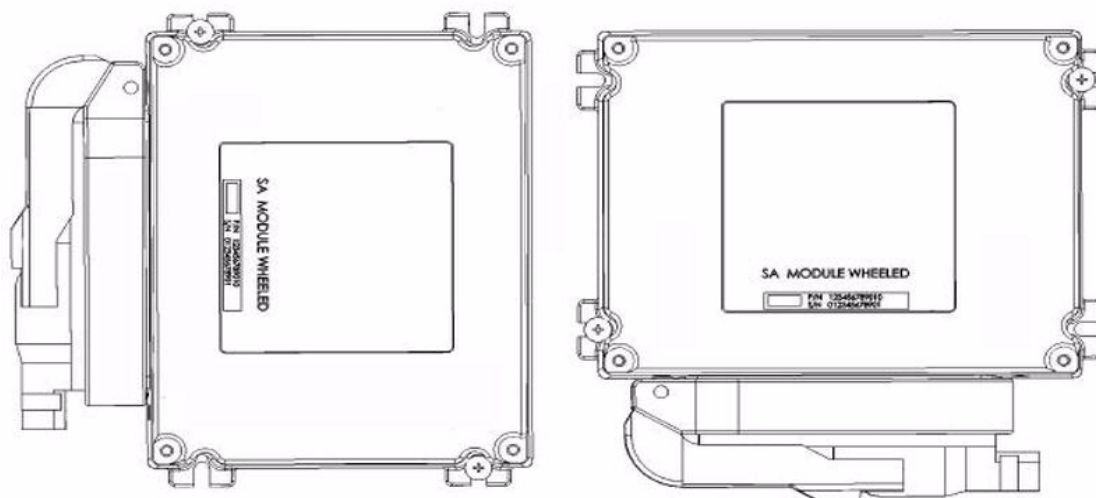
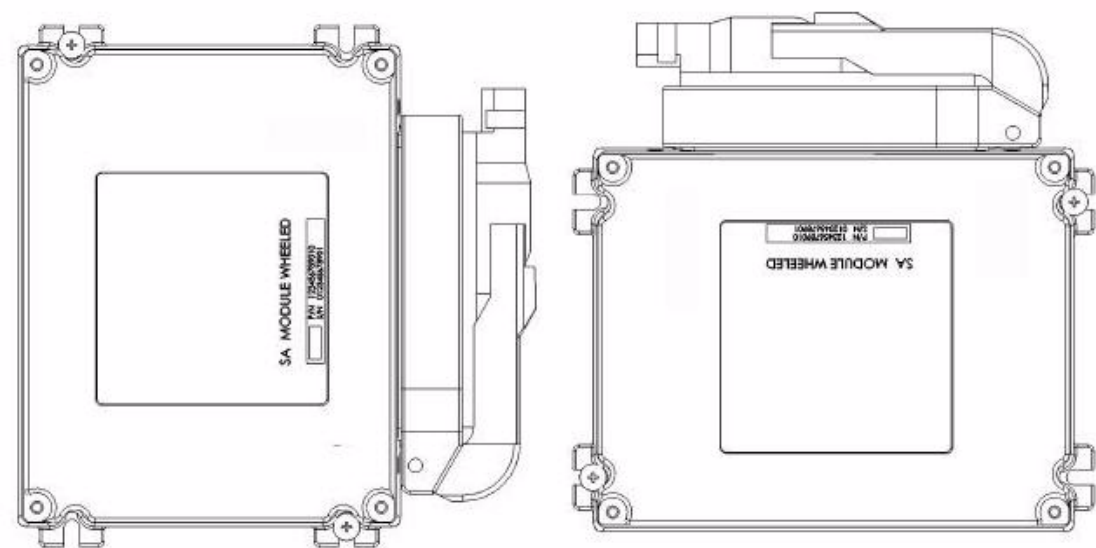


Figure 4-9 Incorrect SA Module Orientation




Roof Module Installation

This **Roof Module Installation** chapter contains information in the following sections:

- *Safety Notes*
- *Roof Module Installation*

Safety Notes

- The AutoSteer system must be powered OFF when installing or removing the Roof Module.
- The Roof Module must always be firmly secured to the Roof Rail using the hardware whenever the vehicle is in operation to prevent the Roof Module from releasing from its bracket and falling.
- The Roof Module must be removed when transporting the vehicle at speeds above 30 mph (50 kph).
- Ensure you are in a stable position on the tractor platform or ladder when removing the Roof Module, so that you do not fall or drop the Roof Module.

	<p style="text-align: center;">⚠ WARNING</p> <p>To prevent injury from falling, ensure you are in a stable position on the vehicle when installing or removing the Roof Rail and Roof Module. If the vehicle does not provide a safe platform, use a ladder to safely access the vehicle roof while installing or removing the Roof Rail and Roof Module.</p>
---	--

Roof Module Installation

1. Locate the two bolts on the cab roof. See *Figure 5-1*.
2. Remove the two bolts using a 24mm socket and ratchet. See *Figure 5-1*.

Note: The bolts can be discarded. Leave the existing washers on top of the rubber gaskets.

Figure 5-1 Mounting Bolt Locations



Note: If the cab has a radio antenna as shown in *Figure 5-1*, the roof module needs be installed approximately 2 inches (50mm) to the right of center to allow the antenna to stand up and move past the roof module handle.

3. Place 4 of the flat washers provided with the installation kit on top of the existing washer on both bolt holes. See *Figure 5-2*.
4. Place the Roof Rail on top of the washers and center it over the cab. See *Figure 5-2*.
5. Place another flat washer on top of the Roof Rail and then install the longer mounting bolts provided with the installation kit.

Figure 5-2 Mount Rail on Spacer Washers



Spacer Washers

6. Tighten the Roof Rail securely with a 24mm socket and ratchet. See *Figure 5-3*.

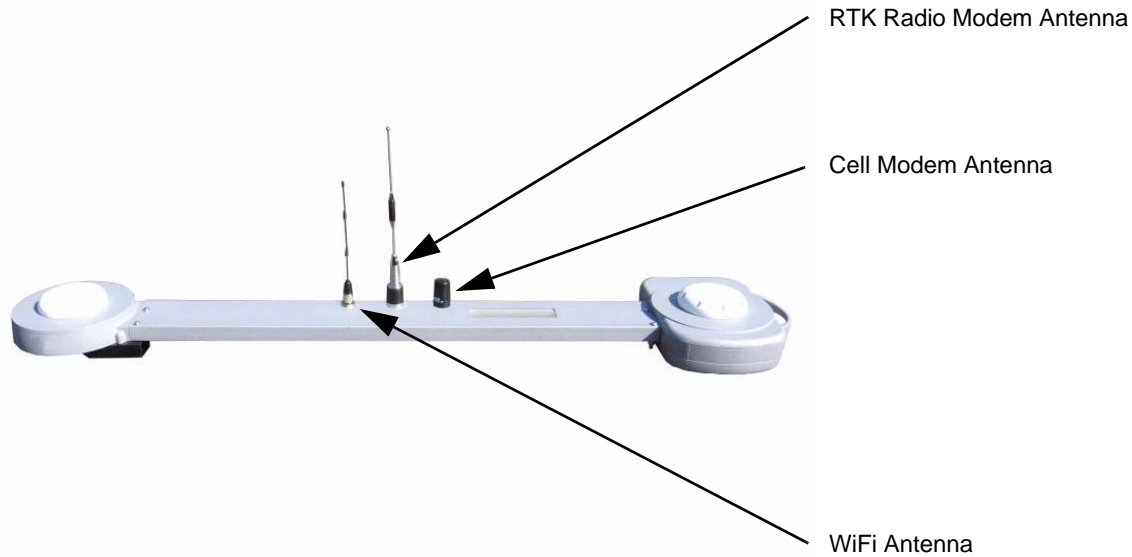
Figure 5-3 Tighten Rail Bolts



7. Attach the three antennas to the proper antennas connections on the Roof Module. See *Figure 5-4*.

Note: Hand tighten the connections. Do not over tighten.

Figure 5-4 Antennas Attached to the Roof Module



8. Place the Roof Module on the Roof Rail. See *Figure 5-5*.

Figure 5-5 Roof Module on Rail



9. Remove the locking pin from the Roof Rail. See *Figure 5-6*.

Note: Press the button on the end of the handle to allow the pin to be removed.

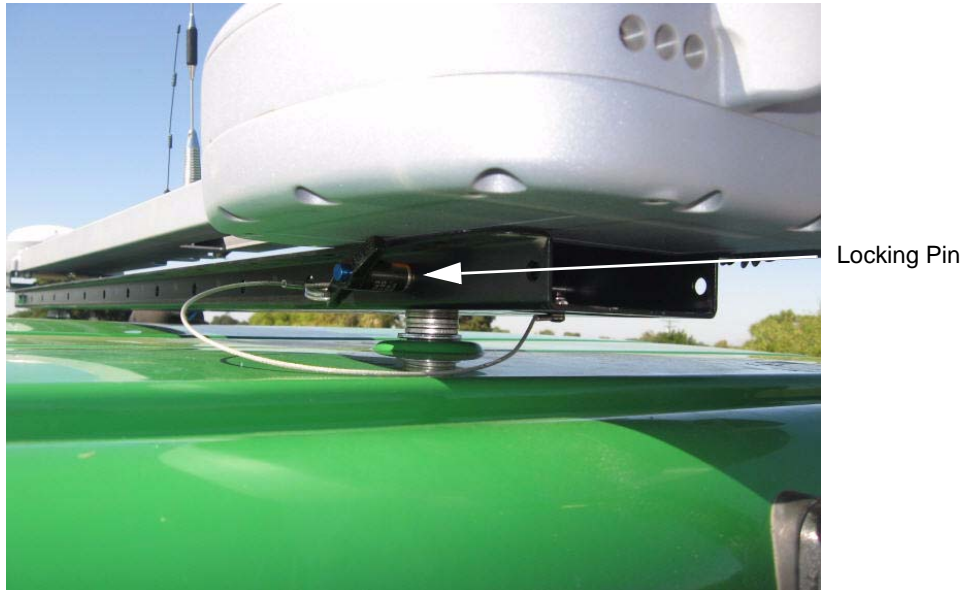
Figure 5-6 Removing the Locking Pin



Locking Pin Button

10. Adjust the Roof Module position on the Roof Rail.
11. Re-insert the locking pin to lock the Roof Module onto the vehicle. See *Figure 5-7*.

Figure 5-7 Locking Pin Inserted



Locking Pin

12. Confirm the Roof Module is secured to the Roof Rail by pulling on the Roof Module handle.
13. *Figure 5-8* shows the Roof Module installed.

Figure 5-8 Roof Module Installed



Display Installation

This **Display Installation** chapter contains information for installing and adjusting the Display in the following sections:

- *Introduction*
- *Installation Procedure*

Introduction

Note: The display components may be different depending on the model vehicle the installation is being performed upon.

Installation Procedure

1. Locate the accessory mounting bracket for the monitor on the front right corner cab post.

Note: Alternative mounting locations can be used if the location shown is not available.

Note: If necessary remove installed Display brackets or hole covers.

Figure 6-1 Existing Display Bracket



Display Bracket

2. Remove the top half of the monitor bracket by unscrewing the large plastic wing nut as shown in *Figure 6-2*.

Figure 6-2 Removing Display Bracket Wing Nut



Wing Nut

3. Remove the two bolts retaining the bracket using a 17mm socket and ratchet. See *Figure 6-3*.

Figure 6-3 Removing Existing Bracket



4. Place the supplied Display bracket on top of the existing Display bracket and re-install the two bolts using a 17mm socket and ratchet. See *Figure 6-4*.

Figure 6-4 Display Bracket Installed



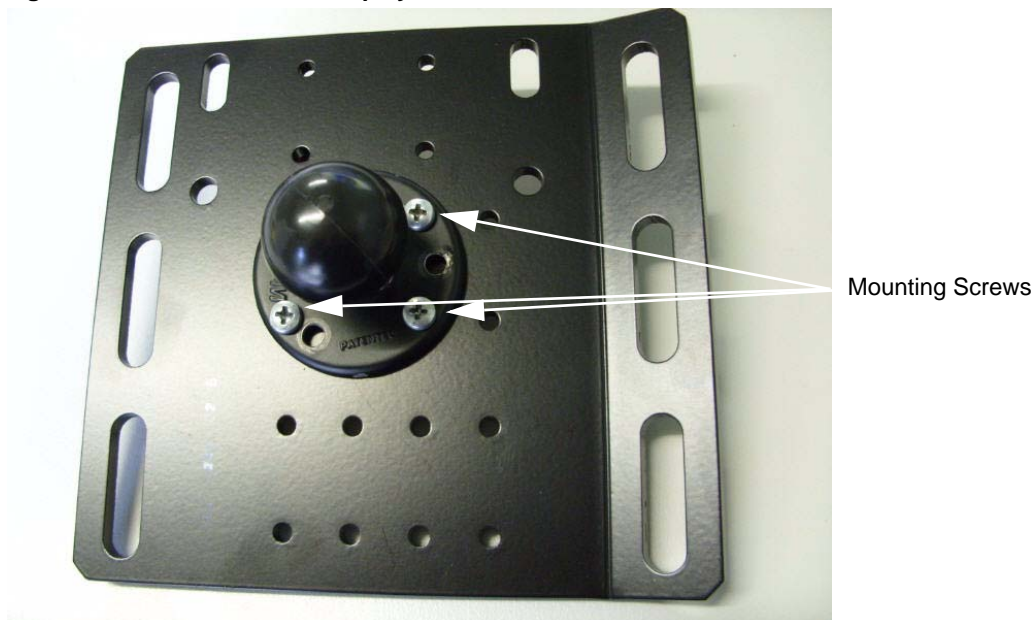
5. Replace the top half of the Display bracket by screwing the large plastic wing nut as shown in *Figure 6-5*.

Figure 6-5 Display Bracket Wing Nut Attached



6. Attach the RAM mount to the Display bracket using the four screws and lock nuts provided.
7. Tighten the RAM mount screws using a 3/8" wrench and #2 Phillips screwdriver.

Figure 6-6 RAM Mount on Display Bracket



Note: Refer to the Display User Manual for the remaining Display specific installation instructions.

Connecting System Cables

This **Connecting System Cables** chapter provides information for connecting the Main Cable Harness and the SA Module Cable Harness to the various vehicle and AutoSteer components in the following sections:

- *SA Module Harness*
 - *SA Module Connection*
 - *Wheel Angle Sensor Connection*
 - *Steering Valve Connection*
- *Main Cable Harness*
 - *Roof Module*
 - *Display*
 - *SAM Harness*
- *Power Supply Connection*
 - *Cab Power Connection*
 - *Battery Power Connection*
- *Install Warning Label*

SA Module Harness

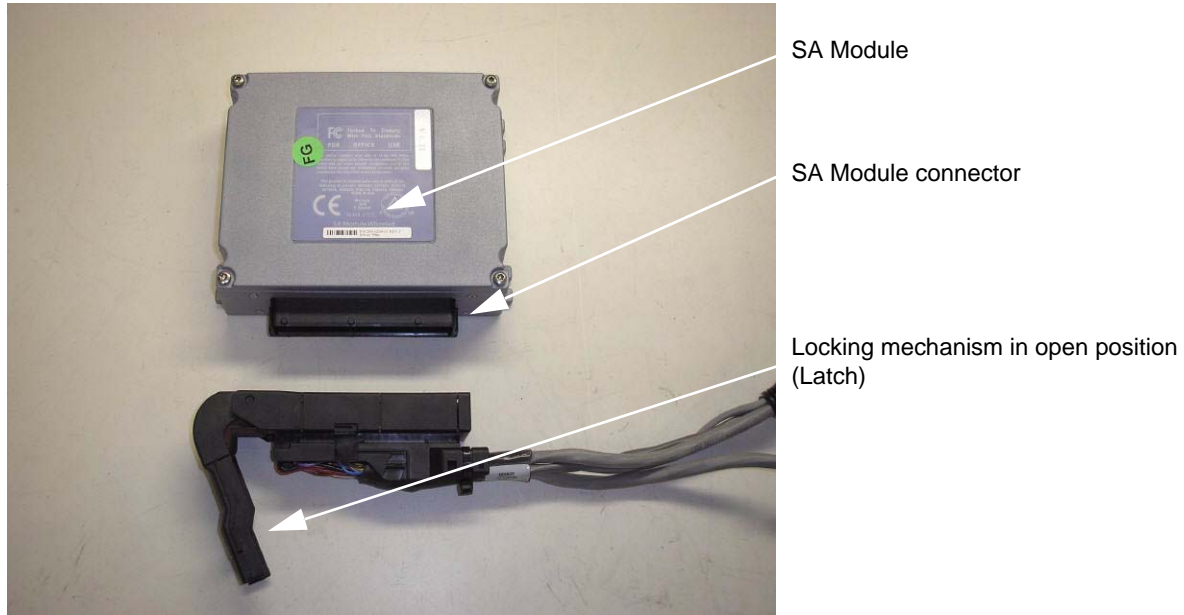
This **SA Module Harness** section contains the following sub-sections:

- *SA Module Connection*
- *Wheel Angle Sensor Connection*

SA Module Connection

1. Align the SAM Harness connector to the SA Module. See *Figure 7-1*.
2. Open the connector latch lever. See *Figure 7-1*.

Figure 7-1 Connecting SA Module Connector



3. Press the harness connector onto the SA Module connector.

Note: You can damage the connectors if you force them into position. Do not force them together or use tools.

4. Press the latch lever closed until it clicks and locks the connector. See *Figure 7-2*.

Figure 7-2 Closing the SA Module Connector



Note: If you need to disconnect the SA Module connector, you must open the latch lever before attempting to pull the connectors apart.

5. *Figure 7-3* shows the SA Module Harness connected to the SA Module.

Figure 7-3 SA Module Connector (closed).



6. Route the SAM Data, SAM Power, Remote Engage and Steering Encoder connections into the cab through the grommet in the cab rear window right-hand side. See *Figure 7-4*.
7. Route the other half of the SAM harness under the cab towards the steering valve and wheel angle sensor on the left side. See *Figure 7-4*.

Figure 7-4 Routing the SA Module Harness into the Cab



Rubber Plug into Cab

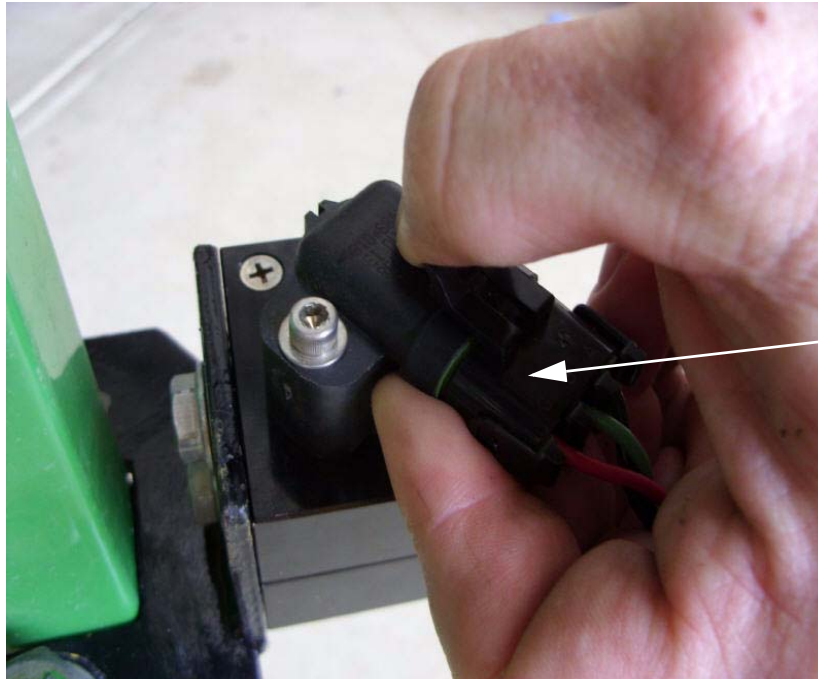
8. Proceed to the *Wheel Angle Sensor Connection* procedure.

Wheel Angle Sensor Connection

1. Route and secure the Wheel Angle Sensor cable from the SA Module beneath the cab to the Wheel Angle Sensor.

2. Connect the cable to the Wheel Angle Sensor. See *Figure 7-5*.

Figure 7-5 Wheel Angle Sensor Connection



Wheel Angle Sensor Connector

Steering Valve Connection

Route and secure the steering cable from the SA Module to the steering valve.

Connect the two connectors shown in *Figure 7-6* to the steering valve.

Figure 7-6 Steering Valve Connection



Steering Valve Connections

Main Cable Harness

This Main Cable Harness section contains the following sub-sections:

- *Roof Module*
- *Display*
- *SAM Harness*
- *Power Supply Connection*

Roof Module

1. Route the cable up the right corner of the rear window and secure with cable ties. See *Figure 7-7* and *Figure 7-8*.

Figure 7-7 Main Harness Exiting the Vehicle Cab



Main Cable Harness

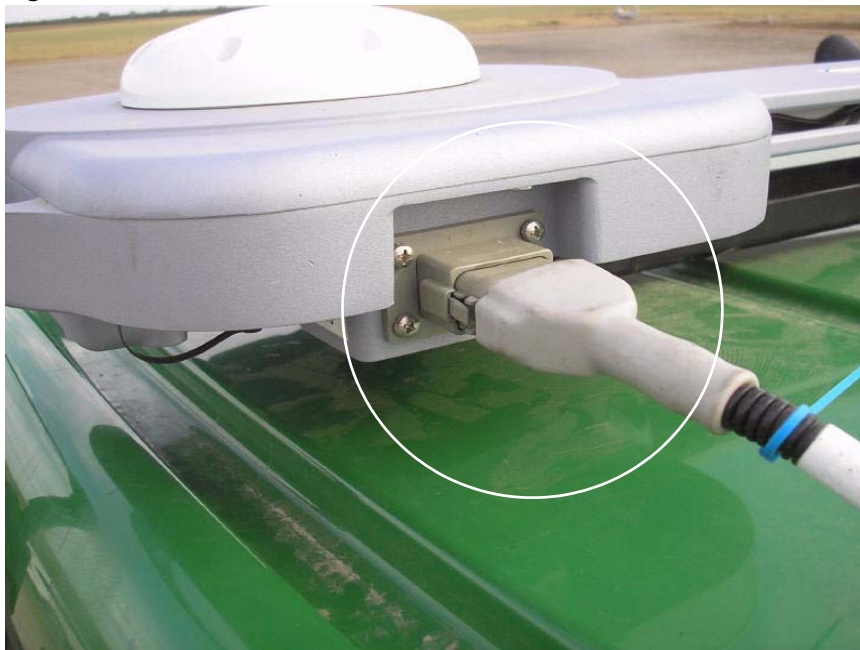
Figure 7-8 Routing Cable up the Cab



2. Attach the cable to the Roof Module. See *Figure 7-9*.

Note: The Main Harness cable connector must be oriented correctly to engage the mating connector on the Roof Module. If the connector does not engage, do not force the connectors together.

Figure 7-9 Roof Module Main Cable Harness Connection



Note: To remove the cable, press the two latches on the side of the connector while pulling the connector away from the Roof Module.

3. Attach the LAN connector to the Roof Module. See *Figure 7-10*.

Note: Rotate the LAN connector sleeve clockwise to engage the connector and counterclockwise to disengage the connector.

Figure 7-10 LAN Connection



LAN Connector

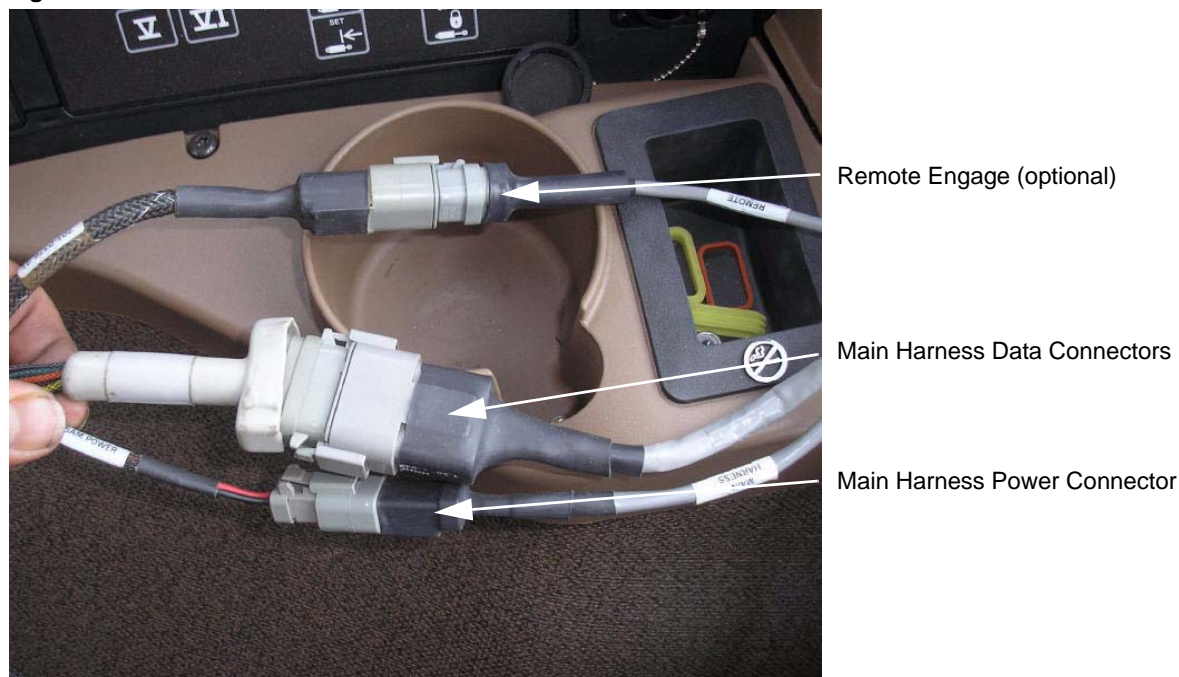
Display

Note: Refer to your Display Owner's manual for details on connecting the Display harness.

SAM Harness

1. Connect the 12-pin data and 2-pin power connectors between the Main Cable Harness and the SAM Harness. See *Figure 7-11*.

Figure 7-11 SAM Harness to Main Cable Harness Connections



Power Supply Connection

The following sub-sections describe basic instructions for connecting the AutoSteer system to available vehicle power sources:

- *Cab Power Connection*
- *Battery Power Connection*

Note: Refer to your display user manual before connecting the AutoSteer system to vehicle power.

The AutoSteer Main Cable Harness must be connected to a 3-pin 12V power source. Your Display User Manual provides specific instructions for connecting power to the AutoSteer system and specifies the appropriate vehicle power source.

Cab Power Connection

Locate a cab console 12V power outlet. See *Figure 7-12*.

Note: The exact location and type of power outlet is determined by your vehicle model.

2. Use a similar 12V accessory power connector if the Display manual specifies connecting to power inside the cab.

Figure 7-12 Cab 12V Power Outlet Example



Cab Power Connection

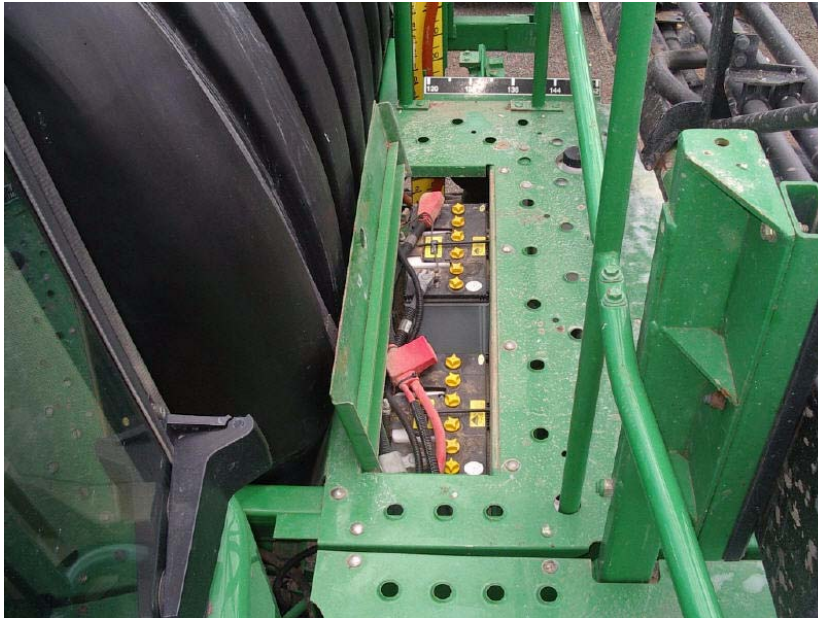
Battery Power Connection

Locate the vehicle battery. See *Figure 7-13*.

Note: The location of the battery is determined by your vehicle model.

Connect to the vehicle battery if the Display manual specifies a direct battery connection.

Figure 7-13 Vehicle Battery Location



Note: A battery cable is provided with the AutoSteer system when a direct battery connection is required.

Install Warning Label

Install one or more Warning labels on the cab window in a position that is easy to read and does not obstruct the driver's view of the road or surrounding obstacles. See *Figure 7-14*.

Note: Install the warning label with the language that best matches the operator's language. If necessary, install labels in multiple languages. Warning labels are provided in the following languages: English, French, German and Spanish.

Figure 7-14 Autosteer Warning Label



Post-Installation Procedures and Information

This **Post-Installation Procedures and Information** chapter contains information on procedures and processes that should be completed after the installation process is complete. The information for this chapter is contained in the following sections:

- *Verify the Vehicle is Ready for AutoSteer*
- *Adjusting the AutoFarm Relief Valve*
- *Calibration and Tuning Notes*

Verify the Vehicle is Ready for AutoSteer

1. Ensure all connectors are properly coupled.
2. Power ON the AutoSteer system.
3. Verify installation and system operation.

Adjusting the AutoFarm Relief Valve

The AutoFarm steering valve has a built-in Load Sense relief valve which limits the maximum pump pressure when AutoSteering. The relief valve must be adjusted after you have completed the hydraulic installation and before you turn on AutoSteer. The AutoFarm system must be fully installed and functional before you can adjust the relief valve.

Note: The relief valve in *Figure 8-1* is shown on a bench without the hydraulic hoses connected for ease of viewing the adjustment process. When you adjust the relief valve, the adjustment is performed with the valve mounted on the vehicle and the hydraulic hoses connected.

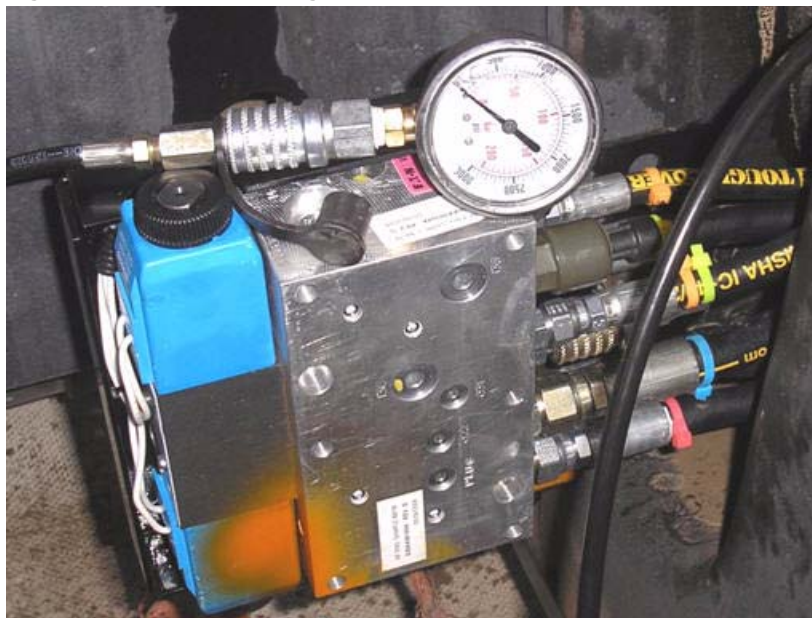
Figure 8-1 AutoFarm Relief Valve Adjustment



Follow the procedure below to adjust the relief valve:

1. Install a 5000 psi pressure gauge on the AutoFarm valve diagnostics port labeled GP. Use a short extension hose on the pressure gauge if necessary for easier reading. See *Figure 8-2*.

Figure 8-2 Pressure Gauge (different vehicle shown)



2. Put transmission into “neutral” or “park” position and turn on the hand brake.
3. Start the engine and leave it at low idle.
4. Immediately check for oil leaks on all hose connections that were opened.
5. Turn the steering wheel full right and then full left and check for correct manual steering response. Immediately check for oil leaks on all hose connections that were opened. Air in the hoses may cause a slight steering delay when the system is first powered up.
6. Observe the standby pump pressure shown on your pressure gauge. Standby pressure should be very low, or around 200psi.

Note: If standby pump pressure is zero or less than 100psi, you might have inverted the Pressure and Tank hoses.

7. Clear any bystanders from around the vehicle because you will be moving the front wheels in the next step.
8. With the display turned ON access the **Hydraulic Valve** window from the **Steering Components** Window and command the steering full Right and full Left. The front wheels will turn towards each of the directional stops. The maximum pump pressure will be indicated on the pressure gauge when the wheels hit the stops.
9. Adjust the AutoFarm relief valve so that the maximum pump pressure is 2400 psi when the wheels hit the stops.
10. Tighten the jam nut on the relief valve once the correct pressure setting has been adjusted.

11. Remove your pressure gauge by sliding the sleeve on the quick coupler.

Note: Turn off the engine before adjusting the relief valve. Turning the engine off will prevent possible vehicle movement or a high pressure fluid hazard. Do not adjust the relief valve with the engine running.

12. Install the front valve cover.

13. Tighten the four Allen screws with a hex key.

Calibration and Tuning Notes

Note: For optimal steering performance, the AutoSteer system must be fully calibrated and then tuned.

Select the appropriate John Deere Sprayer vehicle model when setting up your vehicle on the AutoSteer system display.

Final Hardware Installation Checklist

This **Final Checklist** chapter contains the verifications steps necessary after the installation of the AutoSteer system.

Note: The Final Hardware Installation Checklist is on the back of this page. Tear this page out of your manual and fill in the checklist after the installation. You should keep a copy of this checklist for future reference when servicing the vehicle.

Machine Model: _____ Year: _____ Serial #: _____

Customer Name: _____

Location/Address: _____

AutoSteer Installation Kit Part Number: _____

NOTES

Name of Installer: _____ Date: _____

System Installation Checklist

1. Wheel Angle Sensor Installed and all fasteners are tight. (optional) ☐
2. Monitor Bracket Installed and all fasteners are tight. ☐
3. Roof rail is installed and all fasteners are tight. ☐
4. SA Module is installed and all fasteners are tight. ☐
5. All cable ends are connected. ☐
6. All cables are secured with cable ties. ☐
7. Roof Module locking pin is installed. ☐

Hydraulic Installation Checklist

1. Valve bracket is installed and all fasteners are tight. ☐
2. Valve is installed and all fasteners are tight. ☐
3. All hose fittings are tight. ☐
4. Check the Priority Valve for proper installation and hose connection. ☐
5. Check for oil leaks on all hydraulic connections. ☐
6. All hoses are routed and secured with cable ties. ☐
7. Adjust the AutoSteer Relief Valve. ☐
8. Measure the standby pump pressure. ☐ Value _____
9. Measure the maximum pump pressure in AutoSteer mode. ☐ Value _____
10. Manual steering is normal after the AutoSteer installation. ☐

AutoSteer Performance Checklist

1. Complete AutoSteer system calibration. ☐
2. Complete AutoSteer system tuning. ☐
3. Check total Wheel Angle Sensor counts. ☐ Value _____
4. Line acquisition is satisfactory. ☐
5. On-line steering is satisfactory. ☐
6. Manual override (kick-out) is working. ☐
7. Steering speed from lock-to-lock is satisfactory. ☐ Value _____ Sec.

Note: See the *Connecting System Cables* chapter for additional information.
